62280

EX·LIBRIS·COLL·MED·PHILAD·INSTIT·A·D·MDCCLXXXVII

NON SIBI SED TOTI

Class ______ No. ______

Presented by

H. A. Hare, M.D.

$5.75

Digitized by the Internet Archive
in 2014

https://archive.org/details/gaillardsmedical7475unse

Contents, Pages 7 & 9. Advertisers' Index, Page 31.

GAILLARD'S MEDICAL JOURNAL.

Scientia et Veritas Sine Timore.

Entered as second-class matter at the New York Post-Office
Published by the New York Medical Publishing Co.
116 Nassau St., New York.

EDITORS.
GEORGE TUCKER HARRISON, M.A., M.D.
CARTER S. COLE, M.D.
E. GAILLARD MASON, M.D.

COLLABORATORS.
T. GAILLARD THOMAS, M.D., New York.
J. HERBERT CLAIBORNE, Jr., M.D.
D. BRYSON DELAVAN, M.D., New York.
STUART McGUIRE, M.D., Richmond, Va.
P. BRYNBERG PORTER, A.M., M.D., New York.

VOLUME LXXIV. JANUARY, 1901. No. 1.

ESKAY'S Albumenized FOOD

CONTAINS

EGG-ALBUMEN

COMBINED WITH

Sugar of Milk

AND

Cereals

Deliciousness of flavor, and palatability are characteristics of

ESKAY'S Albumenized FOOD

Its continued use does not pall on the taste. Hence its value, aside from its nourishing properties, in all acute diseases.

ESKAY'S Albumenized FOOD

is easily digested and assimilated by the weakest stomach.

Send for free samples and clinical reports to
SMITH, KLINE & FRENCH CO., Manufacturers,
Philadelphia, Pa.

COLLEGE OF PHYSICIANS OF PHILADELPHIA

MICAJAH'S MEDICATED UTERINE WAFERS

ARE

ESPECIALLY INDICATED IN

GONORRHEA

LEUCORRHEA

AMENORRHEA

ENDOMETRITIS

&C

In selecting a remedy for the treatment of **Gonorrhœa**, one should be used which will not injure the delicate urethral mucous membrane, yet sufficiently powerful to destroy the gonococci For this purpose Micajah's Medicated Uterine Wafers have proved of great service. They prevent cicatricial formation, and may be used in form of solution or a bougie combined with cocoa butter

In the treatment of **Leucorrhea, Micajah's Medicated Uterine Wafers** not only control the discharge, but exert a curative effect upon the diseased mucous membrane Previous to the insertion of the wafers copious irrigation of the vagina with hot water should be employed

The astringent, antiseptic and alterative of Micajah's Medicated Uterine Wafers serve to render them of great value in **Amenorrhea** in which they tone-up and stimulate the relaxed condition of the organs to their normal functional activity. In all menstrual disturbances these wafers will be found of inestimable value.

In inflammatory conditions of the mucous membrane of the uterus as **Endometritis** a remedy which will exert an astringent or depletive action is often desired. Prof Otto Juettner, says:—" Micajah's Medicated Uterine Wafers is the remedy par excellence in **Chronic Endometritis.**

Micajah's Medicated Uterine Wafers have stood the test of time (17 years) and like all successful preparations are most extensively substituted. **Caution** should be exercised in prescribing **Micajah's.** as satisfactory results always follow the use of the original wafers.

Sufficient Samples with literature will be sent gratis by mail by addressing

TRADE Micajah & Co. MARK

WARREN, PA.

AMMONOL

THE STIMULANT · ANALGESIC · ANTIPYRETIC · ETHICAL

AMMONOL is one of the products of Coal-tar, and differs from the numerous similar products in that it contains Ammonia in active form. As a result of this ***AMMONOL*** possesses marked stimulating and expectorant properties. The well-known cardiac depression induced by other Antipyretics has frequently prohibited their use in otherwise suitable cases. The introduction of a similar drug, possessed of stimulating properties, ***is an event of much importance.*** ***AMMONOL*** possesses marked anti-neuralgic properties, and it is claimed to be especially useful in cases of dysmenorrhœa. — *The Medical Magazine, London.*

Ammonol may be obtained from All Leading Druggists.

Send for "AMMONOL EXCERPTA," an 81-page Pamphlet.

THE AMMONOL CHEMICAL CO., Manufacturing Chemists,

LABORATORY 366 AND 368 WEST 11th ST. 18 EAST 17th ST., NEW YORK, N. Y.

LONDON—PARIS—BERLIN—VIENNA—ST. PETERSBURG—PARKEWOOD.

GAILLARD'S MEDICAL JOURNAL.

VOL. LXXIV. NEW YORK, JANUARY, 1901. No. 1.

OBSERVATIONS UPON THE SYMPTOMS AND TREATMENT OF HYPERACIDITY OF THE STOMACH.[1]

By HENRY F. HEWES, M.D., Boston.
Physician to Out Patients at the Massachusetts General Hospital; Instructor in Clinical Chemistry, Harvard Medical School.

The study of the diseases of the stomach has convinced practically all observers that a common cause of disturbance of function and of symptoms in these maladies is a disorder in the secretions of the organ.

Variation from the normal in the secretions, usually an excess or diminution in the quantity of the secreted hydrochloric acid, is a common associate of these disorders. Thus of 300 cases of gastric disorder in my clinic, 159, or 53 per cent., had an abnormality in this respect.

This abnormality may be in some cases an associate, perhaps a result, of distinguishable organic lesions of the stomach, as ulcer, cancer, chronic gastritis, motor insufficiency. It may be the only abnormality among the physical signs discoverable by our methods of examination, existing as the evident and only apparent first cause for symptoms. In both sets of cases it may be a secondary condition and may have no influence in the production of symptoms. Thus we see individuals with marked diminution in the hydrochloric acid secretion leading healthy lives without symptoms of gastric dsturbance, the digestive function being sufficiently performed by the intestines. In a considerable number of cases, however, these abnormalities in acidity, whether primary or secondary, have apparently a distinct influence upon the functions of the organ and upon the production of symptoms.

Evidence of this connection between chemical abnormalities and symptoms is seen in all varieties of disorder of secretion, but is most marked in that class of cases in which the acid secretion is increased, the cases of hyperacidity, or hyperchlorhydria. Here, especially in the cases in which the excessive acidity is the only abnormal physical sign discoverable, the cases of uncomplicated hyperacidity, this influence of the acid excess upon function and upon the production of symptoms can readily be studied.

During the last two years I have had the opportunity to study 58 cases of this uncomplicated hyperchlorhydria. The symptoms and symptomatologies in these cases were as follows: The most constant symptom was distress. If we include pain, burning sensation, nausea and a

---

[1] Read before the Boston Society of Medical Improvement, October 29, 1900.

62280

sense of unrest under this heading, we may say that distress was present in practically all cases. A large majority of cases described the distress as a sense of uneasiness in the stomach as if the food did not sit comfortably, or as a sense of emptiness. In the more severe cases the distress was spoken of as cramp-like pain or a burning sensation spreading over the whole epigastric and sternal regions. The distress appeared within 30 minutes of ingestion in 21 cases. In several it occurred immediately upon ingestion. In 37 cases it occurred from one to three hours after food, in most of these in the third or fourth hour. The next symptom in point of frequency was the raising of gas or the desire to raise gas. This occurred in 50 cases. As a rule it came with the distress. Heartburn occurred in 25 cases. Pyrosis, or raising of acid contents or fluid into the mouth, occurred in 20 cases. As a rule this occurred one to three hours after ingestion of food. Vomiting occurred as a regular or occasional symptom in 17 cases. In some the vomiting occurred with the other symptoms, soon or late after food. In some it occurred in the morning before food. Regurgitation was often described as vomiting and the diagnosis of this symptom necessitated careful questioning. Relief of symptoms by food was a characteristic of 30 cases, practically all cases in which the symptoms appeared long after ingestion of food.

In addition to these symptoms, which were drawn from the experience of the patient, it was possible to obtain a further most important characteristic of these cases by experiment, the characteristic of relief of symptoms by ingestion of an alkali. This characteristic was present in a large majority of the cases. Of 48 cases in which the experiment was tried, this symptom was present in 45. It was constant in all the cases in which symptoms occurred as late as one hour after food.

In addition to the above local symptoms, several of a general nature were frequent associates of the cases. Of these, two, headache and nervousness, were such frequent associates and disappeared so regularly with the relief of the gastric condition that it seemed probable that they, like the local symptoms, might be resultants of the hyperacidity. The headache was as a rule frontal, occurring during the forenoon, often disappearing as the day wore on.

The combinations of symptoms or symptomatologies in the cases varied as much as the symptoms. The most striking symptomatology which occurred in any number of cases was the following: Distress, pain or a sense of unrest coming on two hours or so after eating, associated with some eructation of gas and heartburn and occasional raising of acid contents into the mouth; relief of symptoms by ingestion of food or an alkali. This is the so-called typical symptomatology of hyperacidity of the stomach. It occurred in 16 of my cases.

The combination of distress, eructation of gas, heartburn, occurring within a half hour after food, and relief of symptoms by alkali, occurred in nine cases. Pyrosis occurred in four of these.

In the 33 remaining cases the symptomatology consisted of distress plus eructation of gas or desire to raise gas, with relief of symptoms by soda. In 14 of these cases the symptoms were within one hour, in 19 later. Relief of symptoms by food occurred in all these latter cases.

This review of the symptoms of these cases of hyperacidity brings out some interesting facts in connection with the diagnosis and understanding of this condition. It shows, in the first place, that the combinations of subjective symptoms or symptomatologies which are associated with this single cause in these cases of hyperacidity are far from uniform, and that they are in a majority of the cases not diagnostic or even suggestive of the underlying condition. That is, they are not such as would help us to determine in our case whether we were dealing with hyperacidity or with one of several other affections of the stomach. For the combined symptoms of distress and eructations of gas which formed the whole symptomatology of over half the cases are, as a careful study of other gastric disorders has proven to me, the symptoms of a majority of all affections of the stomach from whatever cause.[2] As to whether the symptomatology in these cases of hyperacidity is ever diagnostic, I should say that it was so in about one-fourth of the cases. The combination of symptoms, distress occurring from one to three hours after meals, associated with heartburn and pyrosis, relief of symptoms by ingestion of food and by alkalies, is when found in its entirety very suggestive if not absolutely diagnostic.

This is the typical symptomatology of hyperacidity given in most textbooks. It is, as you see, but an occasional associate of the disorder, occurring in but 16 of my cases. Where it is proved to be present by experience with the case, not merely by the history of the patient in reply to your questions, it may be taken as diagnostic of hyperacidity (not of course necessarily of uncomplicated hyperacidity) to the extent of warranting treatment upon the lines of this diagnosis. The occurrence of such a symptomatology in any other affection is certainly extremely rare. The combination of symptoms which occurred in the cases remaining after the exclusion of these 16 typical cases and the 33 cases with the symptomatology common to a majority of all cases of gastric disorder, distress, heartburn, pyrosis, occurring soon after food, relief by soda, is strongly suggestive of hyperacidity, but not as much so as the first group. It is more common in hyperacidity than in other conditions, but does occur fairly often in hyperacidity and hypomotility cases.

Certain of the separate symptoms have some diagnostic importance, but less than that of these symptomatologies or combinations of them. Distress is of course a symptom common to all stomach disorders. In a majority of cases of gastric disease it occurs soon after ingestion of food. Distress occurring long after food is, however, found in cases of hypoacidity and hypomotility as well as in hyperacidity. The distress of hyperacidity is more apt to be described as a distinct pain or a gnawing sensation than is that of other affections. Eructation of gas is common to all gastric affections. Heartburn is more common in hyperacidity than in other conditions, but may occur in some people with normal or low acidity. Pyrosis is uncommon save in hyperacidity and is a very suggestive sign. It was, however, described as a symptom in several cases of normal and low acidity which did not yield to treatment for hyperacidity. Vomiting is not more common in this than in other affections.

Relief of symptoms by alkalies is a practically constant symptom of hyperacidity—the only one. It does occur, however, in other conditions, as, for example, nervous conditions and hypoacidity, and is not diagnostic. Its absence would be evidence against hyperacidity. Relief of symptoms by food is by no means a uniform symptom of hyperacidity. It is very rare in other conditions, but does occur. When found it is very suggestive of hyperacidity, and shares with pyrosis the property of being the most suggestive of all symptoms of this condition.

---

[2] Hewes: A Study of the Nature and Significance of Symptoms in Disorders of the Stomach, *Boston Medical Journal*, May, 17, 1900.

In regard to the diagnosis of our condition, then we may say that it can be diagnosed with fair accuracy from the symptomatology in from one-fourth to three-eighths of the cases. In the remaining five-eighths the symptoms give us no assistance. Here we must depend upon symptoms plus chemical findings. And the condition can be absolutely diagnosed in any case only by a study of both symptoms and chemical findings.

The treatment of this clinical condition of hyperacidity of the stomach is based upon this knowledge of the cause and its effects which we gain by such an experimental study of the condition. In these cases the exciting cause, the excess of acid, acts to produce disturbance and symptoms, to my mind, in several ways. In the first place, it may irritate the membrane of the organ, causing pain or distress, peristaltic unrest, regurgitation, heartburn, pyrosis. It inhibits the digestion of starches by the ptyalin of the saliva, and may then tend to the accumulation of starch in the stomach. It acts upon the motor processes of the stomach, often diminishing the activity, even causing spasmodic contraction of the pylorus, so that retarded emptying or stasis of the contents may result. All these effects, the irritation of the acid, the affection of the motility, the retardation of starch digestion, may have results in causing symptoms, the distress, eructations, heartburn, vomiting. The affection of motility may cause stasis of contents, when dilation or fermentation by yeast or sarcinæ may occur.

In addition to and through those specific disturbances of function, the disorder has detrimental results to the body generally. As a result of the distress accompanying the act of digestion the patient eats less food than necessary. This, with the nervous influence resulting from the irritation and disturbance, affects the nutrition of the body. As a result the health is impaired, the nerve tone affected and the stomach made even less able to gain upon its disease. The irritation of the acidity also has disturbing effects upon the nervous system which doubtless tend to perpetuate the increased secretion of the stomach and the intolerance of food.

In addition to the above specific source or sources of disturbance or symptoms in these cases, we have to consider still another element which may be present as a pathological condition influencing the disorder, namely, the relative hyperesthesia of the patient. A close study of our cases reveals the fact that the severity of the disturbance of function or symptoms is not proportional to the quantity of acid present. Cases with great excess may have symptoms milder than those with very slight excess. We not uncommonly see cases of clinical hyperacidity yielding to treatment of this affection in which the quantity of acid is normal for the average individual. Furthermore, in treating certain cases of hyperacidity we find that after cure of all disorders the quantity of acid remains the same or above the normal limits.

These facts suggest that in certain cases increased or abnormal susceptibility of the patient to the secreted acid is a causative element in the case. This is, perhaps, the case with those individuals who suffer with normal amounts of acid, and probably with those who, when cured, still retain the excess of acid. These cases might better be termed gastric hyperesthesia. In treating them, by building them up, or by neutralizing the acid which tends to maintain the sensitiveness, we relieve the hyperesthesia and stop the symptoms. It is probable that this element of hyperesthesia enters to some extent together with the acid excess as a factor in the disturbance of many of the cases. And thus in developing our method of treatment we must bear in mind these two causal conditions, the excess of acid with its irritation, and its influence upon the motor and digestive functions of the stomach, and the possible hyperesthesia of the patient having its origin in the nutritional or nervous condition of the patient. In this treatment we attack our case along both lines. We aim (1) to reduce the acidity of the contents, and (2) to increase the resistance of the patient to the acid, that is, improve the nutrition and nerve tone. Practically we find that an attack along either line is beneficial for both purposes.

To reduce the acidity of the contents, our first aim in the treatment, we may, as a first resort, administer substances which combine with or neutralize the acid. Such substances are, first, proteid food substances which combine with large quantities of acid, and, second, alkalies which neutralize the acid present. This is a simple method and works in a large majority of cases very satisfactorily. The excess of acid can be perfectly controlled by the food with small quantities of alkalies, provided these substances are administered in the proper manner and at the proper time. In some cases this regular control of the acidity leads finally to a lessened secretion. In almost all cases it does away with irritation and disposes of the disturbances due to the acid excess and the symptoms of these. With the improved function which follows this treatment, and the full diet which is part of it, the system tends to regain its normal tone and the hyperesthesia of poor condition is controlled.

The system of treatment which I have used in most cases is built up upon these lines: The patient is given a diet of a calorie worth sufficient for the weight and conditions containing as high proportion of proteid foods as comfortable for the patient. (In my experience the average patient with stomach trouble is eating less than half of a sufficient diet). This diet is separated into six daily meals, the constituents of each meal, with some alternative choice, being prescribed. The treatment tends to use up the acid secreted and facilitates the motor function. Starches should be limited, and of carbohydrate foods sugars or predigested starches, dextrinized flours, as Avenacia flour or Horlick's food, used as much as possible, since starch digestion in the stomach is impeded in these cases. For all symptoms of disorder, as distress or eructations, some proteid, as a raw egg, is to be taken. An alkali, bicarbonate of soda in half-teaspoonful doses, or 15 grains of magnesic hydrate, may be taken in addition to food or in place of it for the relief of symptoms. In some cases large amounts of alkali, three drachms bicarbonate of soda, must be used in the 24 hours. Three pints of water are prescribed to be taken in small amounts at a time throughout the day. In addition, general rules in regard to baths, exercise, the bowels, the work, and general manner of living are laid down in writing. Debility must be treated by tonics. Nux vomica is a most useful agent here to improve the tone of the system and thus also perhaps the motor capacity of the stomach. Where anemia is present by blood tests iron should be given. Chlorosis is not infrequently associated with hyperacidity. After an administration of iron with the regular régime for a few weeks these cases as a rule lose all symptoms of hyperacidity even with cessation of treatment. There is little doubt that it is a similar improvement in nutrition which accompanies the increased diet, and good régime and freedom from nerve disturbance which ensure the cure in a majority of all the cases.

The exact details of treatment of course vary with the cases. Many cases of hyperacidity are intermittent or paroxysmal. These cases it is necessary to treat locally only during the period of attack, while a general method of régime should be employed constantly to prevent recurrence. In some cases the acidity is only after one meal, as, for example, dinner. This must be borne in mind in the determining of the diagnosis as well as in the treatment. We must get the contents at the period of symptoms.

This treatment gives excellent results in the great majority of cases. In some, relief is immediate, and with the return of normal tone it is possible after a month or two to drop special treatment. In a majority of these cases the acidity is found in time to be normal, in others the acidity remains as at first, though the symptoms disappear. In a certain proportion of cases the treatment must be followed in a general way permanently. It is impossible to collect accurate statistics of cure from an out-patient clinic. But it is certainly a rare exception to see a case of hyperacidity which does not yield to this treatment when properly applied. In my records I find less than 10 per cent. of cases returned as not relieved after trial of this simple treatment of régime, diet and alkalies. In these obstinate cases lavage is often a useful adjunct to treatment. After a few weeks of lavage combined with a very special diet worked out by experience with the case, the patient is raised to the regular régime. In these cases it is often necessary to feed small amounts frequently and to use concentrated food substances, as the Leuke-Rosenthal meat solution, Mosquera beef meal, somatose, which have a high capacity for combination with hydrochloric acid. Such cases are, however, exceptional. As a rule the diet of easily digested or liquid foods is the least useful one that can be chosen. In some obstinate cases I have used nitrate of silver for internal treatment and for lavage with success.

It is well known that our cases of hyperacidity are of two types: One in which a neurosis or functional hyperactivity appears to be the fundamental element in the case, and one in which a marked increase in the gland tubules and oxyntic cells of the gastric membrane is present as an underlying pathological condition. This latter condition, a form of chronic gastritis, the gastritis acida of Cohnheim, is diagnosed by the presence of fragments of the pathological membrane in the stomach washings. It is said by some observers (Hemmeter) that 50 per cent. of the cases of hyperchlorhydria have some such hyperplasia of the tub–

ular structures. Typical cases of this condition are, however, much less common, and such fragments are, in my experience, found in a much less per cent. of cases by ordinary methods of examination. When our condition is obstinate, and does not tolerate the regular treatment, it is well to investigate specially as to whether our case is one of this gastritis acida. For such cases, and indeed for all cases proving obstinate to the proteid treatment, the method of continuous treatment upon low proteid diet should be tried.

It has been urged that the method of treatment of hyperacidity by the utilization of the acid food simply aims to offset the acidity of the contents, not to control the secretion, and that a more fundamental method of treatment would consist in aiming to lessen this secretion. Also it is claimed by certain observers that the secretion of acid in the stomach is proportionate to the amount of food requiring acid for digestion, that is, the proteid food. And that therefore the proteid diet, while relieving symptoms, tends to increase the disorder, while a low proteid diet will tend to decrease the actual cause of disturbance, and thus give permanent cure. Hemmeter reports some observations upon dogs which tend to support this theory.

In the few cases in which I have tried this latter method I have found it difficult to keep up. It does not give the immediate relief of symptoms obtained by the proteid method and the patients do not keep to the diet as well as in the proteid method.

The proteid treatment, whatever its aim, certainly ends in reducing the secretion of acid in many cases. It controls symptoms at the time in almost all cases. Since it acts so effectually I have used it regularly as a first resort in all cases where it is tolerated. Where it fails the other method should be given a trial.—*Boston Medical and Surgical Journal.*

THE DIAGNOSIS OF ECTOPIC PREGNANCY BEFORE RUPTURE, BASED ON ELEVEN CASES.*

By J. F. BALDWIN, A.M., M.D.,
Surgeon to Grant Hospital; Fellow of the American Association of Obstetricians and Gynecologists, etc., Columbus, Ohio.

"No authentic description exists of an unruptured tube-pregnancy" (Lawson Tait, "Diseases of Women," 1889, page 451). "I defy anybody to have diagnosed such a case beforehand, for the woman had not even missed a period" (ibid., page 452).

Our real working knowledge of extrauterine pregnancy dates back only about twenty-five years. Previous to that time deaths were reported from so-called accidental hemorrhage into the peritoneum, and also deaths from intraperitoneal and extraperitoneal hematocele. Many cases had been reported of fetuses found in the abdominal cavity and of lithopedions found many years after the pregnancy from which they dated their origin, but it was not until twenty-five years ago that from a careful study of these cases, and as the outgrowth of these late diagnoses, data were arrived at from which we derived accurate knowledge of the pathology of ectopic gestation.

---

*Read before the American Association of Obstetricians and Gynecologists, at Louisville, September 18-20, 1900.

While, a few years ago, the rank and file of the profession could not but regard as extraordinary the diagnostic acumen of the men who could make the diagnosis of tubal pregnancy on the occurrence of rupture, at the present time, with the increase of literature on this subject and our better knowledge of its symptomatology, intelligent physicians everywhere expect uniformly to make a correct diagnosis on such occurrence. The sharp, colicky pains, the syncope and the collapse, at once attract attention and point almost unerringly to the diagnosis. But a diagnosis deferred until rupture has occurred necessarily results, in a large proportion of cases, in being but the mere preliminary to a fatal termination. The patient may be far removed from surgical assistance, and death may occur long before such assistance can be obtained.

With our present knowledge on this subject, I believe it is now possible, in a fairly large proportion of cases, to make a diagnosis of tubal pregnancy before the occurrence of rupture. This statement, I know, is in direct contradiction to statements made by Mr. Lawson Tait in his published writings of 1888 and 1889; but the profession at large knows much more of ectopic pregnancy now than it did ten years ago, when Mr. Tait reported that he had seen but one case of ectopic pregnancy before the period of rupture, and in that did not make the diagnosis at the time of the examination, but found the ruptured cyst three days later at the operation, which had been made imperative on account of the supervention of alarming symptoms.

It is true that in many cases of tubal pregnancy no symptoms occur which lead the woman to suspect that anything is wrong, least of all to consult a physician, until the occurrence of alarming symptoms due to rupture and the resulting hemorrhage. Nevertheless there are unquestionably very many cases in which symptoms do arise, and in which a physician is consulted, and in which a presumptive working diagnosis is clearly possible.

There are no pathognomonic symptoms of tubal pregnancy or of any other form of ectopic pregnancy. Usually, however, we find the following points: The patient gives a history of several years of sterility (many exceptions); she has missed a menstrual period, perhaps two of them (numerous exceptions); she has noticed some unusual pains in the pelvis, which she will probably describe as boring, griping, or colicky in character, these pains being situated usually in the region of an ovary; she has perhaps, within a few days of the time of consulting her physician, had a more or less irregular hemorrhage; perhaps has discharged pieces of membrane which she supposed indicated an abortion, and consults her physician with the idea that such is the case, owing to the hemorrhage and the pain and the suspicion of an existing pregnancy. Possibly, however, there has been no suspicion of a pregnancy, as the woman has accepted her sterility as incurable and has dismissed from her mind such a possibility.

On making a vaginal examination, if the conditions are at all favorable the examiner will find upon one side or the other of the uterus, or back of it, a fusiform, quite well-defined cystic tumor of about the size of a pullet's egg or a little larger. This tumor will probably be quite tender on pressure, will be quite symmetrical in outline, and will usually be distinctly pulsating. When such a tumor is found in a woman in whom we have reasonable grounds to suspect a pregnancy; when the uterus at the same time is found somewhat enlarged and having the feel of pregnancy, but not enlarged as much as we would expect in a pregnancy of so long continuance as the history indicates, a presumptive diagnosis of tubal pregnancy is warranted, and the matter of an operation should be carefully and without delay considered.

There are a few conditions which give us the same kind of a tumor as is found in these cases. These conditions, however, are seldom accompanied by the other symptoms which have been enumerated, and are in themselves such as to warrant, if not to demand, operative intervention. As enlarged and adherent ovary in Douglas' cul-de-sac cannot, perhaps, be differentiated from a tubal pregnancy in the same location. An old pyosalpinx, a hydrosalpinx, a small cyst of the broad ligament, or an enlarged ovary in its normal location might be mistaken for an unruptured tubal pregnancy. It is not likely, however, that any of these conditions would be accompanied by symptoms pointing to an ectopic pregnancy, and yet they may; but all these conditions are such as to justify operative interference. If the operator, suspecting a tubal pregnancy, finds a pus tube, as I have twice done, or a cystic ovary, he has certainly benefitted his patient by their removal; while if he finds an unruptured tubal pregnancy he has, by a very safe operation, saved his patient from the gravest of dangers. In other words, he has performed an operation the mortality of which in experienced hands is almost *nil*; while the mortality of ruptured tubal pregnancy, while necessarily unknown, is certainly frightful.

In order to render the early diagnosis of ectopic pregnancy possible, it is necessary for physicians to learn to suspect it and to examine with that suspicion in mind. The physician who, without making any examination, tells all middle-aged women who come to him complaining of irregular hemorrhages that they are merely having the change of life, will not likely make an early diagnosis of cancer of the uterus, and he will probably tell patients who come to him with symptoms of ectopic pregnancy that they are merely threatened with a miscarriage. He will make no further investigation, and will hence uniformly fail to make a diagnosis. The physician, however, who, having in mind the possibility of an ectopic pregnancy, thoroughly examines all patients whose history and symptoms point to this condition, will, in a large proportion of cases, make a correct diagnosis and by prompt intervention will achieve a signal triumph for himself and his profession.

Menstruation.—One menstrual period, perhaps two, has ordinarily, but *not always*, been missed, or the last menstruation was in some particular irregular. There has occurred, perhaps, a dribbling of blood, but not a normal flow. There may have been a discharge of clots, or possibly a decidual membrane resembling the membrane passed in an early miscarriage. If such membrane can be obtained, microscopical examination showing the absence of chorionic villi would render a diagnosis positive; but these membranes have usually been destroyed.

Sterility.—Not too much stress should be placed upon the previous sterility of the patient. This should be taken into account in a summary of the symptoms, but it is not of much moment, since in many cases there has been no such previous history.

Pain.—The pain of a tubal pregnancy is usually sharp and colicky in character and quite distinctly localized on one side, or it is of a dull, boring, constant character—a steady, severe ache. The pain in the one case is due to the internal stretching, with slight giving way, of the peritoneal investment of the tumor. In the other, the pain is due to the constant tension of the tumor walls, but without as yet any local yielding. The sharp, colicky pain is therefore very apt to succeed the other in point of time. The pain may be very severe, so severe as to result in some acceleration of the pulse during its continuance, but there is no elevation of temperature. Possibly the pain may be so severe as to result in fainting, but faintness is rather a symptom of at least partial rupture with some hemorrhage.

A woman who consults her physician presenting these symptoms, or several of them, should be at once carefully examined with the idea in mind of a possible tubal pregnancy. If that examination reveals a tumor such as has been previously described, the presumptive diagnosis of tubal pregnancy should be made and an operation unhesitatingly advised. The remote possibility of a mistake in diagnosis should be explained to the patient or her friends, but there should be no hesitation in urging an immediate operation. A slip, a misstep, any sudden alarm even, may in a moment precipitate rupture, with all its unfortunate consequences.

At the Atlanta meeting of the American Medical Association (1896), in a discussion on this subject in the section of Diseases of Women, I reported five cases in which I had made the diagnosis and had operated on tubal pregnancy before rupture. (Two of these cases occurred in the same patient at an interval of eight months.) I believe I was the only one present who had ever made such diagnosis and had so operated. Since that time, however, a number of such operations have been made, and I think there can be no doubt that the time has come when such cases will be reported with increasing frequency until the diagnosis in suitable cases becomes recognized as an essential duty of the well-qualified practitioner.

This preliminary presumptive diagnosis must be made by the family physician. It will later be verified by the surgeon, but the early diagnosis of ectopic pregnancy, like the early diagnosis of uterine cancer and of appendicitis, must depend upon the education of the family physician.

The following six cases have occurred since the five which I reported in 1896:

Case 6.—April 24, 1898, Mrs. S., age 22; married two years; never pregnant; menstruation always regular. Menstruation came on at the usual time five weeks ago, but came on and has continued up to the present time merely as a dribbling of blood. Has always enjoyed excellent health. Knows of no reason for not becoming pregnant. Has been having a feeling of weight and bearing-down in the pelvis, with a constant aching sensation which she locates in the womb. Vaginal examination shows the uterus somewhat enlarged and pushed forward toward the pubes by a mass in Douglas' cul-de-sac. This is elastic, smooth in outline, somewhat tender, but without general pulsation. As there has been no history of any trouble prior to the last menstrual epoch, the probability of a tubal pregnancy seemed great, and an exploration through Douglas' cul-de-sac was advised. This was made two days later, and revealed a greatly distended tube without rupture, but with some free blood in the cul-de-sac, the hemorrhage having come from the open end of the tube. The specimen removed revealed a pregnancy estimated at about six weeks' duration.

Case 7.—December 8, 1898, Miss McD., age 24, servant. Had one miscarriage at three months two years ago; no other pregnancies. Has not been entirely well since the miscarriage. Denies having had any pelvic disease; no dyspareunia. Was unwell regularly and normally two and one-half weeks ago. Complains of pain and bearing-down in the pelvis and back. Pains somewhat like labor pains came on just before the last menstruation and have continued ever since. Has had no nausea. Has had no intercourse since menstruation. Vaginal examination shows a very tender mass back of the uterus, the size of a pullet's egg. This mass is excessively tender. She is positive that this tenderness has existed but for a very short time. Pulsation is distinct. The right ovary can be outlined; the left ovary also, but very indistinctly. The diagnosis seems to lie between a pus tube, which her history negatives, and a tubal pregnancy. Operation through the vagina December 10. The right tube was found in Douglas' cul-de-sac, being held there by light adhesions. It was removed without difficulty and the entire specimen turned over to the pathologist for examination. He reported later that the specimen was that of a very early tubal pregnancy. Impregnation in this case probably took place just before her last menstruation. (Saw a moribund case, some years ago, in which fatal rupture of a tube pregnancy had occurred in a prolific multipara three weeks after the cessation of a perfectly normal and regular menstruation, and without the slightest suspicion of a possible pregnancy in the mind of the patient.)

Case 8.—May 5, 1899, Mrs. K., age 24; married four years; had a miscarriage during the first year of married life; no pregnancies since. Menstruated naturally, commencing on the 20th of March. Had always been very regular, and expected to menstruate April 18. The flow did not come on, however, until the 28th; continued for about five days, then stopped one day, then recommenced, and has continued as a mere show up to the present time. During this time she has had more or less pain in the right side of the pelvis. This pain was described as "cramping" in character. Has never had the slightest irregularity in menstruation before. Examination shows the uterus retroverted and adherent. Back of it and low down is a tender, cystic mass, the size of a small hen's egg. This is also adherent. She is sure that this tenderness could not have been there but a very short time. Diagnosis of a tubal pregnancy was made and an operation advised and made the next day per vaginam. The tube above the sac was ligated with catgut and the sac easily removed. Examination of the specimen verified the diagnosis.

Case 9.—August 22, 1899, Mrs. S., age 37; mother of five children, the youngest 3 years of age; was unwell last from the 20th to the 25th of June; has had no show since. Several times during the last few weeks has experienced cramping sensations in the abdomen, more marked on the left side. Four days ago was taken with severe pain in the lower abdomen and sent for Dr. Mayhugh, her physician. He found a tender mass on the left of the uterus, the exact character of which he did not understand, but which led him to suspect ectopic pregnancy. Pain still continues, but is less severe. On examination I found a well-defined mass to the left of the uterus, the uterus itself pushed over to the right. Could not detect pulsation. From the character of the mass and the history, concur in the previous diagnosis of ectopic pregnancy and advise immediate operation, which was made the next day. On opening the vault of the vagina, found some blood which had extruded from the open end of the Fallopian tube. The tube itself was distended to the point of bursting by the embryonic mass. In drawing the tube down into the vagina to effect its removal it was torn off near the horn of the uterus. The hemorrhage following the tearing was not very great, but it seemed best to secure its effectual control by opening the abdomen. This was done and the operation completed without any difficulty. Examination of the tumor revealed placental tissue and a very minute embryo. (This patient became pregnant normally in October and was safely delivered at full term).

Case 10.—March 27, 1900, Mrs. S., age 30; mother of four children, youngest 2 years of age; no miscarriages; no history of any pelvic disease. Should have menstruated ten days ago, but had merely a show at that time. It came on freely, however, a week later, and there is still some dribbling; no clots. Commenced having pain in pelvis a week ago, but had severe pain in the right side of the pelvis and epigastrium two weeks ago. Still has pain in the right side; this spot is "sore." Has never had any such disturbance as this before. On examination, find a tender, pulsating mass just back of the uterus and to the right, continuous with the uterus; is very tender; pulsates indistinctly; about the size of a hen's egg. Diagnosis of tubal pregnancy seemed plain. Operation, made the next day, showed an ectopic pregnancy in the right tube, which was in Douglas' cul-de-sac and adherent. While breaking up the adhesions the sac ruptured, and the embryo was lost in the moderate hemorrhage which followed. Microscopical examination confirmed the diagnosis.

Case 11.—May 19, 1900, Mrs. W., age 26; mother of one child, age 3 years; no miscarriages. Patient has always menstruated regularly and normally, the last time being March 1. Some time after this menstruation she commenced having pains in the pelvis, especially on the right side. These have persisted until the present time, but have been much worse of late. She consulted her family physician, Dr. Dixon, some two weeks ago, and he at once suspected the possibility of an ectopic pregnancy. She declined an examination and passed from observation. Yesterday and last night she suffered with intense pain, and he was again called. On examination he found a condition of affairs confirmatory of his previous suspicions. Her pulse is good, but she complains of feeling short of breath and of pains resembling those of angina pectoris. Patient is quite fleshy, with thick abdominal walls; nevertheless an indistinct mass can be made out on the right of the womb. This is quite tender, but without any distinct pulsation. There was no tenderness in this region previous to this sickness. Advise that patient be prepared for an operation, an anesthetic be given, and, if examination confirm the suspicion of ectopic pregnancy, an immediate operation be made. The patient was at once transferred to the hospital and this procedure carried out. The examination under the anesthetic abundantly confirmed the previous suspicion. As the mass was higher up than usual in the pelvis, the operation was made by the suprapubic route. Some blood had escaped from the fimbriated extremity of the tube, but the tube itself had not ruptured. Examination of the specimen verified the correctness of the diagnosis.—*American Journal of Obstetrics.*

EARLY DIAGNOSIS OF MAMMARY TUMORS.*

By GEORGE F. SHRADY, M.D., New York.

The necessity for making an early and accurate diagnosis of a suspected malignant tumor cannot be too strongly urged. In advanced cases of carcinoma there need be no question as to positiveness regarding their nature, but then, oftentimes, the suggested remedy is too late for hopeful application. It is for lack of appreciation of the initiatory signs of malignancy in a given growth that the general practitioner, who is first consulted, postpones his opportunity until he is forced to see that he has been misled from the start. Particularly is this condition of affairs manifest in the frequently occurring tumors of the breast which, in doubtful conditions, present so many puzzling questions for ready answers.

In the effort to give a somewhat practical turn to a part of the subject, to which more attention may be directed than is ordinarily given, I purpose to discuss partly on the basis of personal experience some of the debatable points which so frequently stand between positive opinions regarding benignancy on the one hand and malignancy on the other. While we are forced to admit, on general principles, that all mammary tumors are bad, and that the majority of apparently harmless ones turn out disastrously, there is still a reasonable number that are innocent in character from beginning to end. The greatest question of all in this discussion hinges upon the possibility of drawing the dividing line in its proper place. This is as important in regard to the earliest possible operation that can be made in a doubtful and threatening growth as in those fewer cases in which the patient can be assured of safety without such radical treatment. We thus span also the border line between the extremes of positive declaration that an operation may be unnecessary on one hand or useless on the other. When the most experienced surgeons are liable at times to err in this particular, it proves the more that the general practitioner should not trust to ordinary generalizations in offering opinions. Although it is a good rule to refer all morbid growths to experts, he can often, by appreciating certain salient clinical features, avoid positive contradiction in the final verdict, or, at least, save himself the mortification of being charged with neglect in allowing malignancy to entrench itself under his very eye.

---

*Read at the meeting of the Practitioners' Society, January 4, 1901.

If we start with the study of a well-developed cancer of the breast, we can perhaps obtain a working basis for comparison with similar growths minus the malignancy. There are the growing stony tumor embedded in the gland substance, the puckered adherent skin, the characteristic orange-peel look of the latter, the retracted nipple, and the enlarged axillary glands. Every one should know the nature of such a disease when fully developed so soon as he sees it. But it is the condition short of this in one particular or another that causes the careful man to stop and think. There is nothing to help his conclusion beyond the growth itself. In incipient carcinoma there is no diathesis present that can give him a desired clew, as all varieties of temperament and of physique are on a common plane of predisposition. It is the absence of all the cardinal marks of cancer save tumor that may often argue for benignancy. Upon a decision pro or con depends the saving of the breast by simple removal of the growth or cutting away breast, axillary glands, and all contiguous tissue. If we preserve the mamma when it can be done, everything is saved for patient and surgeon. It is perfectly legitimate to aim at such a possibility, although it is never allowable to shut our eyes to sterner facts in other directions.

There is, of course, much to influence us in the diagnostic way in reference to age, although all tumors in old women are not necessarily malignant. The fact is exceptional, it is true, but the interest in the present study is precisely in such directions. One patient of mine dying at 75 years of renal trouble carried a fibro-glandular tumor for 30 years, the growth undergoing no degenerative change during that period. Similar cases have occurred in the practice of others.

Chronic circumscribed mastitis, although it takes its place in the list of innocent infiltrations, is often mistaken by the novice for a more serious trouble, but generally speaking its distinctive marks can be readily recognized. It is the only form of so-styled tumor which does not respond to the tumor test. There is an increase of substance; it is irregular, nodular, diffusive, often multiple, but conveys no sense of projection and condensation to the gentle pressure of the outspread hand upon the breast surface. This fact may be explained, in part at least, on the score that the conditions of difference between the sound and the affected parts are those of degree rather than of kind. Then, again, separate involvement of different areas of breast tissue is never the rule in cancer. Curiously enough, grasping the affected parts laterally gives a distinct impression of more or less extensively diffused and increased hardness, which is always the cause of great anxiety to the patient when the real cause of the phenomenon cannot be reasonably explained. A proper diagnosis generally depends upon the fact whether or not the induration is more or less isolated and tends to increase. In the former case there is always a suspicion of incipient malignancy, especially if the swelling increases in a patient who has passed the climacteric. Exceptions to this rule are, however, generally allowable when the infiltration is centered around the site of an old abscess scar or a discharging breast sinus. It is in these single and more or less circumscribed deposits that cancer is said to develop so frequently. This fact would appear to give color to the probability that, instead of malignancy having been induced by mere interstitial changes, it was such from the beginning. If the contrary view obtained, that a confessedly innocent infiltration always invites cancerous deposit, there would be no law against a simultaneous malignant invasion of the separate indurations having similar conditions of receptivity. I have never seen cancer develop in a breast in which distinctly isolated points of induration have existed, although such occurrences have been noted by others. The latter fact, however, is no argument against the supposition that the particular malignant growth may be entirely independent of a benign growth in the same or other breast.

Another point worthy of note in this connection is that mastitis, when quiescent for months, seldom takes a distinct neoplastic tendency afterward. I can recollect no exception to this rule in my experience. Clinically speaking, simple chronic interstitial mastitis as such has not shown any disposition, so far as my observation has gone, to convert itself into carcinoma. It has always seemed to me that it should be one thing or the other from the very inception of the trouble.

As there are no clinical means of distinguishing a fresh patch of mastitis from a commencing carcinoma, the only way to clear up doubts in either direction is to study the case carefully and note whether or not there is any progressive development of the affected part. "In no branch of morbid pathology," says Sheild, "are mistakes more commonly committed by too confident observers than in this," and he further states that in doubtful cases even the microscope may fail to draw the line between actual benignancy and commencing malignancy, especially when the epithelium of the tubules or acini shows a disposition to cell proliferation.

It is a pity that we have no means of prognosticating such cases on the basis of what may be called a cancerous predisposition. Heredity does not help us much in this direct line of inquiry, although on general principles it should give us a reasonable hope of answering a difficult question. The theory of parasitic origin is far from being substantiated. The only arguments in its favor are those of analogy. The disease is not communicable. So far as we know at present, it originates locally in isolated areas, and certain collections of epithelial cells are seized with an insanity of proliferation which defies all ordinary laws of control. Many authors ascribe this proclivity to purely protoplasmic influences, as if in our present state of knowledge that could mean anything more than a virtual admission of our inability to explain anything. It is merely another way of admitting the embryonal origin of the process, which nevertheless is involved in like obscurity as to relations of cause and effect. Thus far we know merely that embryonal cells have multiplying powers of their own, their malignancy being in proportion to the low scale of their development. It is not, however, the purpose of this paper to discuss questions of pathology except in an incidental way so far as they may explain some of the difficulties in early diagnosis.

Adenomatous tumors of the breast, occurring as they do mostly in younger women, are typically benignant growths. Being more condensed and circumscribed than the contiguous mammary tissue, they always respond to the tumor test. Although they are sometimes deeply and firmly incorporated with the gland substance, they are usually quite movable under smooth and healthy tissue. This ofttimes multiple character is also significant of their comparative harmlessness, as well as their ready and painful responsiveness to menstrual impressions, and above all their very slow growth. While the presence of these negative features regarding the suspicion of malignancy are significant enough in typical cases, there is in the doubtful ones, in which leading signs are wanting, often much difficulty in making positive diagnoses. This condition applies most particularly to the more or less embedded and fixed varieties. Often a definite opinion in such cases hinges upon the demonstration of the disconnection of the tumor with the gland proper. Although this may not always be possible, I am convinced that it can be done in most instances by firmly steadying the breast and by making efforts to move the growth independently in different lateral planes. Even in the stalked and embedded fibro-adenomata there are generally one or more directions in which limited mobility can be obtained when the growth can be fairly grasped and isolated. It can easily be seen that this diagnostic sign is not common either to cystic growths or to chronic mammary infiltrations and certainly not to carcinomatous deposits. The only exceptions that occur to me are those of lipoma and enchondroma, which, besides being very rare, have other characteristics not easily escaping ordinary observation.

The fibro-neuromatous tumors, which for benignancy may be classed with the adenomata, are not of common occurrence, are generally of small size, have severe pain as a leading element, and, so far as I know to the contrary, are always superficial and very freely movable under healthy skin. It would hardly be conceived that any error in diagnosis should be made in such cases, although I call to mind two instances in which amputation of the breast was resorted to for supposed cancer.

It is with the likewise embedded cystic tumors, however, that the greatest difficulties in diagnosis are often encountered. While it must be admitted that the only absolute test of correct opinion is the aspirating-needle and the withdrawal of fluid, there are other points to be considered in connection with physical signs which if not equally conclusive are in their way strongly corroborative of suspected conditions. With a typical retention cyst, it is easy to understand why it should have a more or less globular form and why pressure on its most prominent projection should give a peculiar and significantly elastic feel. The latter symptom, apart from the aspiration, is a characteristic and extremely valuable diagnostic sign. It is never obtained, so far as I can attest, by other than this direct form of intercepted pressure. Sometimes it is entirely absent, especially when the growth is very deeply situated, and occasionally under such conditions even aspiration fails to find fluid. Almost every surgeon of large experience has met with dry taps under such circumstances. In the discussion of Dr. Bull's paper on cystic tumors of the breast, recently held before this society, such cases were related. Dr. McBurney gave instances in point. In one he was so sure of carcinoma that aspiration was not deemed necessary, and in another a careful preliminary exploration with the needle was without result. I have had a like experience in similar cases.

Why aspiration should sometimes fail it is somewhat difficult to explain. Probably in certain cases even a good-sized needle may be plugged by a punched-out portion of a thick cyst wall or clogged by densely viscid fluid, and in others the cyst itself may be simply transfixed or skirted by a too deeply plunged needle.

Taking chances, however, of occasional failure in the procedure mentioned, it is not likely that all the other significant signs of cyst are absent. In one instance of "dry tap" the marked globular shape of the tumor when the patient was under ether very effectually confirmed my previous suspicion of its real nature.

It is well to recollect in this connection that a discharge of yellow fluid from the nipple is a very important item in cystic disease, as is also the occasional rapid disappearance of the swelling. This is probably due to a more or less direct communication with adjacent ducts, which when obstructed from any cause may give opportunity for a reaccumulation of fluid. Sheild is of the opinion that "sudden alteration in volume of a tumor of the breast is always a sign of cystic formation." I have noted two instances of disappearance of retention cysts, in one of which it was clearly due to rupture of the wall by direct injury to the part. It need not be mentioned that all cysts are not necessarily benign in character. We meet with them in the villous and soft forms of cancer, as well as in sarcoma, and occasionally an ordinary retention cyst will develop malignant degeneration in the inner surface or in the substance of its walls. Under such circumstances the fluid is almost invariably either deeply tinged with blood or contains decomposing or broken-down tissue material. Encountering one such case years ago has influenced me in advising the resection of the cyst wall in all doubtful cases, rather than the simpler and more generally practised method of aspiration.

Sarcomata of the breast, comparatively infrequent in themselves, are very apt in one way or another to compass many of the physical characters of the benign growths. In their inception they may closely resemble embedded adenomata in firmness, shape, and outline; the only elements of suspicious malignancy being their composite character, rapid growth, multiple cyst formation, and their irregular and boggy softening. In the latter respect they resemble soft carcinomata, although these forms of cancer usually break down in their centers only. It would hardly be supposed that these softened areas would be mistaken for single or multiple abscesses, although they are known to have been freely incised on such a presumption. Palpation, as a rule, does not give any distinct sense of fluctuation, but rather a mushy and yielding feel that is quite characteristic when once it is duly appreciated. Then, again, aspiration quickly discloses the true nature of the pathological process of neoplastic changes.

When we admit the fact on one hand of the breast having been extirpated for cancer when a mere chronic abscess existed, and on the other hand of acute suppurating carcinoma having been allowed to go to the bad without operative interference, we are impressed with the necessity of more accurate study of their differentiating conditions. It is generally admitted that in obscure cases of abscess the diagnosis is often extremely difficult. The symptom of fluctuation which is associated with suppuration is in the deep abscesses often entirely absent. The expansive and irregular infiltration of the tumor usually gives the impression of another and more significant process. The persistence of the tumescence without elevation of temperature or marked tenderness on pressure are suspicious circumstances of grave import, especially in older women who may be past the climacteric period. Even the pitting of the overlying skin by finger pressure—the pathognomonic sign of suppuration—may be wanting, as well as the abrasion or crack in the nipple which so commonly offers an entrance for the primary infection. As a rule, however, there is always more or less throbbing pain, and the skin of the affected part is more or less œdematous. Of course, the absolute necessity of aspiration in order to clear up all suspicions of imprisoned pus need not be urged.

In studying the question from the standpoint of excluding malignancy we may also view the situation in a more or less practical way by noting such inclusive phenomena as may justly arouse suspicions in opposite directions. It is then that we can duly appreciate the true significance of those initiative signs which give us our first warnings of the gravity of any given case. Among these I would class the dimpling of the breast, often the first thing noticed by the patient, as perhaps the most significant of all the early physical phenomena of cancer. In the large majority of cases it is always present and when found is in itself almost pathognomonic. The nipple at this stage it not involved, as a rule, nor is the overlying skin otherwise implicated in the usually puckered way, as it is later on. Not very infrequently this indentation of the skin due to the involvement of the fibrous processes, which radiate in different directions of the healthy gland, is restricted to the nipple, thus accounting for retraction of that organ as an exceptionally early symptom. The depth of the growth is seemingly no bar to the development of the dimple in question, as in many cancers which have a submammary origin it is very plainly manifested.

Regarding the tumor test in these cases, it may be said in general terms that almost invariably it can be clearly demonstrated by placing the patient in the recumbent position and stroking the breast with the flat of the hand. From personal experience I am able to state that I have never yet failed to detect a carcinomatous tumor in any portion of the breast when this important means of diagnosis was carefully applied.

The hard fixed tumor as associated with the condition named and the occasionally darting pains are, in my experience, the earliest possible signs of cancer that are usually called to the notice of the general practitioner by the anxious patient. The latter, as a rule, generally discovers them very accidentally. She comes to him for advice and comfort, and he very often gives both, to her utter detriment. Neither party to the contract wishes to believe in grave outlooks, and both are content merely to watch and wait for future developments. The results are such as are often seen by the surgeon when on his first consultation he recognizes the widespread character of the disease and its comparative hopelessness of cure by operation.

Enlarged axillary glands, valuable as are their indications of cancerous infiltrations, are not in themselves of special or absolute value in a strictly diagnostic sense; inasmuch as we see them in chronic mastitis, abscess, chancre of nipple, simple eczema of the latter organ, and even in adenomata and inflamed cysts. Generally, however, in advanced cases of carcinoma, when the nodules are significantly corroborative elements of diagnosis, there is not that degree of sensitiveness on handling that is noted with the more innocent involvement of these parts. Besides, they do not give the impression of such distinct hardness, fixidity, and chain-like arrangement as in malignant cases.

Although this condition cannot, by itself, be classed among the first signs of malignancy, the deeper portions of the axilla are usually very early involved, notwithstanding the enlarged glands may not be felt at the time. In fact, we have no means of proving how soon the infiltration may take place in any given instance. Under some circumstances it would appear to be an almost simultaneous involvement with that of the gland itself.

This, after all that can be said on the subject on hand, brings us to the true moral of our story. It is re-emphasizing the necessity of early and accurate diagnosis in all cases of breast tumors. Mammary growths, as a class, can never be trusted. The weight of evidence is so strongly on the side of malignancy, threatened or pronounced, that no conscientious practitioner can afford to have any doubts as to the responsibilities he should assume. There is hardly a "simple tumor," so called, which, when discovered in the breast, may not eventually become malignant. The man who takes the chance of an exception to this rule must of necessity be very sure of his ground. On such a possibility all rational and timely treatment necessarily depends. No question of diagnosis in any other disease has a more practical bearing on ultimate results. Fully 90 per cent. of breast tumors in older women are probably malignant, and the remaining 10 per cent. are very objectionable tenants. A mammary neoplasm is bad company, no matter how we may argue to the contrary. It is the leaven in the lump which may at any time assert itself.

If it were necessary to emphasize any further the necessity for accurate diagnosis in each individual case, it should be added that the surgeon who is to operate should, above all others, place himself beyond the chance of possible error. The only absolutely sure way to do this is by an exploratory examination of every tumor before its actual extirpation is attempted. This is the rule with every careful operator. No matter how plain the case may appear to be, there is no argument against being doubly sure. In one instance, when no doubt as to correctness of diagnosis seemed possible, when the stony fixed tumor was there, when the skin was dimpled, when the axillary glands were enlarged, and when even previous aspiration was a cheat and a snare, I have happily by such means saved a condemned breast by the simple enucleation of an inflamed, thickly walled, and deeply embedded cyst.

The strongest side of the argument for safety is the removal of all growths, whether in young or old. It is only a question of saving the breast in the case of benign tumors, and of sacrificing the entire organ and its varied lymphatic connections on the other. Even in adenomata there are the best of reasons for this course, considering the oftentimes great suffering during the parturient and lactating periods, and the additional fact that the subsequent engrafting of malignancy is by no means an absolute impossibility. No tumor of the breast can be considered a trivial affair. The first thought of the victim is that of probable cancer, and in the great majority of instances, with age on the side of the argument, her suspicion is reasonably well founded. The main obstacle to the definite settlement of the question is the family physician himself, who too often calms reasonable fears and postpones judgment until the disease entrenches itself beyond the hope of its radical and absolute conquest. Thus the chance of the earliest possible diagnosis is denied the anxious patient, and the first irretrievable step is taken toward an utterly hopeless prognosis.—*Medical Record.*

THE TREATMENT OF ENTERITIS WITH XEROFORM.

In order to test the efficacy of the drug, Dr. Giovanni Petrucci, of the University Clinic of Parma, has treated about forty cases, mostly of acute catarrhal enteritis, with Xeroform alone. The dosage was 0.35 to 0.5 gram (5¼ to 7½ grains) in wafers to adults, and 0.1 to 0.25 gram (1½ to 3¾ grains) in gum emulsion for children, at about three hourly intervals. The remedy was always well borne even by individuals who were greatly weakened by age or disease. There were no noticeable by-effects. In two cases only there was a very slight and transitory nausea immediately after ingestion of the drug. Digestion was undisturbed. Pulse, respiration, and urine remained normal; the fæces became dark brown. The history of a few of the specially severe cases is as follows:

1.—Teresa F., 35. Had had enteritis for eight months. It began as a violent diarrhœa, followed by the passage of mucus and blood; pain was marked. Bismuth, opium, astringent injections, etc., did her no good. The pain and diarrhœa returned continually after short intervals of betterment. At Pertrucci's first examination, at the beginning of April, he found the patient very badly nourished and weak. The abdomen was tender everywhere, but especially upon the right side. No fever, and no tubercular affection. Urine normal. Xeroform, 0.35 gram (5¼ grains) every three hours was ordered. Next day the dose was increased to 0.4 gram (6 grains). On the third day there was slight improvement, less abdominal tenderness, and more infrequent stools. Meteorism and borborigmi had almost entirely disappeared in a week. She had two stools daily, and there was no mucus in them. Strength and appetite returned rapidly, and after two weeks' treatment she was discharged entirely cured. The fæces were normal, and all the symptoms had disappeared.

2.—Beatrice M., 37. Enteritis for three months; great weakness, anorexia, coated tongue, acid eructations. Frequent diarrhœal stools containing mucus and blood, and great tenesmus. Xeroform, 0.3 gram (4½ grains) ordered at intervals of three or four hours. There was a remarkable improvement at once; and after thirty doses the patient was entirely cured.

3.—Catterina P., 57. Weakly constitution. Colic, vomiting, and diarrhœa containing undigested food; cramps of the extremities. Treatment: Xeroform 2.5 grams (37½ grains) divided into eight wafers. Cure in two days.

4.—Emilia C., 8. Good constitution. Acute intestinal catarrh since three days; four to five daily diarrhœal stools, violent belly-ache, pronounced meteorism. Directions: 1.2 grams (18 grains) of Xeroform divided into six wafers. Cure in one day.

5.—Adelaide C., 49. Acute enteritis since three days. Numerous diarrhœal stools containing mucus and blood; much tenesmus, violent thirst. Directions: 3.5 grams (52½ grains) of Xeroform in ten wafers. Improvement by the second day, cure by the third.

6.—Evaristo G., 50. Weak; has suffered repeatedly from malaria. Acute entertis since two days; remnants of food, mucus and blood in stools; nausea, vomiting, and violent abdominal pain. Ordered 3 grams (45 grains) of Xeroform in nine wafers. Improvement by the second day; cure by the fourth, the patient returning to work.

7.—Giovanni G., 69. Has scurvy; numerous extensive cutaneous hæmorrhages and œdema of left foot. Violent diarrhœa and abdominal pain since two days. Directions: 2.5 grams (37½ grains) of Xeroform in six wafers. The diarrhœa was cured in one day.

8.—Giuseppe D., 4. For several months has had enteritis; abundant diarrhœa with mucus and blood. Has been treated with bismuth and chalk without result. Ordered 1.5 grams (22½ grains) of Xeroform in ten wafers. Cure in three days.

9.—Maria B., 9. Acute enteritis for three days with violent abdominal pain, and four to five passages daily. Ordered 0.5 gram (7½ grains) of Xeroform in six wafers. The pains diminished after the first three doses; cure was complete on the first day.

10.—Dusolina B., 30. Acute entertis, with mucus in the stools. Treatment: Three grams (45 grains) of Xeroform in ten wafers; cure in two days.

11.—Amilcare S., 19. Delicate. Has had abdominal disturbance for some time. Diarrhœa, pains, anorexia, great weakness. Treatment: Xeroform, 2 grams (30 grains) in eight wafers. The pains diminished on the second day; and both they and the diarrhœa entirely disappeared upon the third.

12.—Dina T., 24. Markedly anæmic; five months gravid. Since several days abdominal pain and diarrhœa; fæces contain undigested food. Was given iron and Xeroform, 2.5 grams (37½ grains) in six wafers. The remedy was well borne, although digestion was greatly impaired. Cure after two days' treatment.

13.—Ferdinando B., 61. Suffers from pellagra since several years. Enteritis during the last five months; four to six daily passages containing undigested food, mucus, and blood. Abdominal pain and borborigmi. Has taken all the usual remedies, bismuth, Dover's powder, tannin, etc., without effect. Treatment: Xeroform, 2 grams (30 grains) in five wafers; then 3 grams (45 grains) in six wafers. On the following day the abdominal pains and rumblings had almost entirely disappeared. The diarrhœa persisted, though in less intensity. Mucus and blood disappeared from the stools. The Xeroform was continued for several days, but without better result.

These results need but short commentary. The complete tolerance of the remedy, its absolute innocuousness, and its prompt action are apparent. It is readily intelligible that Xeroform, attacking the cause of the diarrhœa, rapidly relieves its symptoms, meteorism, colic, etc., so that special remedies for that purpose are unnecessary. In acute cases, where its bactericide action is more especially marked, it acts more rapidly than in chronic ones. In the chronic forms the infective symptoms are less marked, and the slower astringent effects of the remedy upon the inflamed mucosa are evident.

Dr. Petrucci concludes that Xeroform is a most excellent remedy for the diarrhœas of acute enteritis; that it is a therapeutic agent which answers all the clinical requirements of an astringent and disinfectant; that it acts upon the intestinal canal alone; and that it is well borne and has no harmful by-effects.—Abstracted from *Re .diconti del l'Associazone Medico-Chirurgica di Parma*, No. 8, 1900.

FORMS OF TREMOR AND THEIR CLINICAL CHARACTERS.

R. T. Williamson states that the relation of tremor to voluntary movement enables us to arrange the cases into three groups; but there are other sub-varieties. 1. Tremor occurring during repose of the limb, but ceasing or diminishing on voluntary movement, with attention tremor which ceases when an object is grasped or when the hands are held out. The tremor in paralysis agitans is usually of this form. 2. Tremor occurring only on voluntary movement and ceasing during repose (intention tremor). This is the form of tremor in disseminated sclerosis, even at an advanced stage; but several other forms of tremor, at a very early stage, occur only on voluntary movement. 3. Tremor which occurs during repose, but which is much greater during voluntary movement; as in most cases of marked alcoholic, senile, asthenic, simple, and hysterical tremor, and in several other varieties.—*The Medical Chronicle*, October, 1900.

HYPODERMIC INJECTIONS OF IODIDE OF SODIUM IN RHEUMATISM.

Otto (*Ther. Monatsh.*, No. 14, 1900) confines his treatment of acute or chronic muscular rheumatism to the hypodermic injection of sodium iodide in 5 per cent. solution, of which he uses two syringefuls. The solution should be as recent as possible, since on standing it decomposes and liberates iodine, which renders the injection more painful. No untoward effects have been noted from the treatment, nor any abnormal sensitiveness special to different regions of the body, so that the injections were almost always made into the painful region itself. Within the next twenty to thirty minutes a more or less intense burning is felt, proportionate with the age of the solution, and the pain begins to recede, while movement becomes more practicable. Beneficial results were prompt and remarkable, one injection of from five to ten centigrammes being generally sufficient. Otto has never met with a failure, and has come to discard all other therapeutic measures in the treatment of muscular rheumatism.

INCOMPATIBILITIES OF HEROIN AND HEROIN HYDROCHLORIDE.

Heroin and heroin hydrochloride from an essential part of so many formulæ for the relief of cough, dyspnea, and pains in the treatment of respiratory affections that it is important to determine in what combination they will prove most effective, and what are their incompatibilities. Owing to the insolubility of heroin in watery solutions it is necessary to add a few drops of some acid, acetic or hydrochloric, in order to effect its solution. This can be entirely obviated by using the hydrochloride, which is freely soluble. The only incompatibilities of heroin and the hydrochloride worthy of special mention are the alkalies, such as bicarbonate of sodium and carbonate of ammonium. On the other hand, salts of neutral reaction, such as iodide of potassium or chloride of ammonium, may be used in the same mixture, and this also applies to acid salts, such as the hypophosphites or acid phosphates. The vegetable expectorants, as ipecac, senega, squill, and sanguinaria, are entirely compatible with heroin and its hydrochloride. Although many physicians employ heroin without admixture very desirable results have been reported from combinations with iodide of potassium, chloride of ammonium, and the vegetable expectorants, according to the indications present in particular cases. A word as to the dosage of heroin and heroin hydrochloride may be of interest here. The large doses at first recommended at the time of the introduction of heroin are no longer preferred by the majority of authors, the average dose ranging from 1-24 to 1-12 grain in adults, and 1-120 to 1-60 grain in children. It is advisable not to employ larger doses until the smaller ones have been given a trial. Furthermore, many physicians now resort to the hypodermatic use of heroin hydrochloride in cases in which it is desirable to obtain an immediate effect, and especially in the treatment of spasmodic conditions, such as asthma, care being taken in the preparation of solutions not to add the drug until the water has partially cooled.

CONTRAINDICATIONS OF DIGITALIS.

Potain, according to the *British Medical Journal* (*Jour. de Med.*), in lecturing on the subject of digitalis, states that insufficient attention is paid to the selection of suitable patients for digitalis. He says it is a good rule that when inequality, irregularity and insufficiency of the pulsation are not present, or when there is no drop of the cellular tissues and serous cavities, contraindications for digitalis exist. The lecturer does not look upon a permanently infrequent pulse as a contraindication. He even considers that many indications of infrequent pulse are caused by the pulsation failing to reach the wrist, and that digitalis may therefore do good. A strong contraindication to digitalis is the presence of myocardial lesions. In these cases, not only is the drug ineffectual, but it may be dangerous. Thus myocarditis, senile cachexia, fatty degeneration, etc., call for the very greatest care in the use of this drug. Potain looks upon aortic incompetence as, generally speaking, a contraindication, unless there is, as in some few cases, undue acceleration of the beats. Dyspepsia very often causes digitalis to disagree, for under these circumstances patients bear it badly. Similarly a cachectic condition is a contraindication. As to the bad results of digitalis, the writer states freely that they are not properly reognized. Some nocturnal delirium is one of the first to appear, and one of the most frequently overlooked. Pallor, coldness of the extremities, trembling, contraction of the pupils, are important indications to suspend the drug. Some patients die suddenly of syncope, others gradually. Death from digitalis is most frequently met with in Bright's disease, arthritic and anemic subjects, and in persons with aortic incompetence or delirium tremens. Occasionally there are curious idiosyncrasies to be noted, such as melancholia and night-terrors. As an unusual result may be mentioned pulmonary apoplexy, especially when tricuspid incompetence is present.—*The Philadelphia Medical Journal.*

SUPRARENAL EXTRACT IN THE TREATMENT OF RICKETS.

Stoelzner (*Edinburgh Medical Journal,* October, 1900) sums up the results of six months' experience of the treatment of rickets by suprarenal extract at Heubner's clinics under the following heads:

Suprarenal extract has a favorable effect on the general condition of the child, on the nervous manifestations, on the profuse sweating, and above all on those cases where craniotabes is present. Often all these symptoms are greatly ameliorated in the space of a single fortnight.

Children treated in this manner rapidly gain the power of walking and running; the softness of the thoracic walls quickly disappears, and teeth are erupted.

The treatment seems to influence only to a very small extent the enlargement of the epiphyses, the rickety rosary, the dimensions of the fontanel, and the spasm of the glottis.

The amelioration of all the symptoms is most marked during the first eight days of treatment, after which period the progress is much less rapid.

Even in cases complicated by syphilis, bronchitis, and bronchopneumonia, the treatment is almost invariably followed by a very considerable improvement in the rickety symptoms.

SOME STATEMENTS CONCERNING CALOMEL.

The new Italian journal, the *Practica del medico,* says in its September number that the fact that certain erroneous notions about calomel, especially its incompatibility with other drugs and the danger of its transformation into corrosive sublimate, are widely entertained, has led it to make the following statements: 1. Calomel cannot be changed into corrosive sublimate in the short time for which it remains in the alimentary canal; it is a very stable salt, and only small quantities are transformed into soluble albuminates. 2. Purgative doeses are quickly eliminated with the fæces, while small, fractional doses remain in the intestine for a long time and, being changed into soluble salts, may be absorbed; this is the reason why calomel in small and repeated doses is more dangerous than in a single large dose. 3. Substances which contain sodium chloride are not incompatible with calomel; those containing hydrocyanic acid (such as cherry-laurel water and emulsion of bitter almonds) are incompatible with it, because they lead to the formation of mercury cyanide, which is very soluble and rapidly absorbed. 4. It is dangerous to administer calomel which has been for a long time mixed with powdered sugar. 5. Calomel should be kept in opaque and well-stoppered bottles, for under the influence of light and air it partially decomposes. 6. Calomel should be in the form of an amorphous powder, fine to the touch, and of uniform whiteness.—*New York Medical Journal.*

AUTO TOXIDE USED IN TYPHOID FEVER.

It is not often that I give testimonials, but I think I should report my success with Auto Toxide, as it takes a place not specially urged by its manufacturers. As an intestinal antiseptic it will meet the indications probably better than anything on the market.

G. B., age 34, was taken with marked typhoid symptoms. His condition followed the usual course until the end of the second week, when I was called on account of a profuse hemorrhage of the bowels. As I had a sample box of Auto Toxide I concluded to prescribe it, with the result that I was able to control the hemorrhage. In addition to my usual treatment this brought about an improved condition. I think in Auto Toxide we have found the ideal intestinal antiseptic.

J. R. Williams, M.D.,
White Pigeon, Mich.

TREATMENT OF ASTHMA AND HAY FEVER.

By ERNEST KINGSCOTE, M.B., C.M., London.

Asthma is a symptom and not a disease, just as headaches, coughs and epileptic convulsions are symptoms. Indeed, Trousseau aptly described asthma as an "epilepsy of the lungs." By asthma I mean the spasmodic variety. This must not be confounded with cardiac dyspnœa, which often accompanies it. It consists of spasmodic contractions of the involuntary muscles surrounding the bronchioles and of the over-action of the voluntary muscles of respiration in their efforts to overcome these contractions. It is of little avail, therefore, to attempt to eradicate asthma by local applications to the lungs or by constitutional remedies which tend to lower nervous excitability, because, when the effect of these has passed off, we remain *in statu quo.* Now, there is one way and only one of artificially producing asthma. It is as follows: If we anæsthetize a dog, divide the left vagus in the neck and gently stimulate the proximal end with electricity, we produce asthma in the right lung and spasmodic contractions in the right half of the diaphragm.

We must look, therefore, for the cause of asthma in some tissue or tissues supplied by the vagi and sympathetic nervous system (Gaskell has pointed out that the sympathetic system is physiologically an extension of the vagi) or in a lesion of the nerves themselves, as none but a nervous irritation could influence so wide an area as that of the 750 millions of bronchial tubes contained by the average lungs. When we consider what a wide range these nerves have, it is clear that we shall discover any known cause or causes of asthma in the area of their origin or distribution, for instance, the brain, the heart, the lungs, the liver, the spleen, the uterus, the kidneys, etc., as exemplified by dyscrasic asthma, cardiac asthma, bronchitic asthma, hepatic asthma, splenic asthma, pelvic asthma, renal asthma, etc. There are, however, three pretty constant factors in cases of asthma of long standing; these are cardiac dilatation, acute vesicular emphysema and chronic congestion of the liver. These conditions must be dispersed, in addition to any other causes, in order to cure the patient. With regard to cardiac dilatation I have endeavored to show in a series of papers how the dilated organ may impinge on the vagi (which lie immediately behind it on the bony spine) and so irritate them as to produce the asthmatic spasm. Emphysema tends to produce asthma by (*a*) dilating the heart and (*b*) interfering with the pulmonary circulation.

In some cases either or all of these conditions (I have seldom seen a case without them) may be the sole remaining causes of asthma, the original cause or causes having worn itself or themselves out.

[It is surprising that Kingscote in his discussion of asthma and hay fever makes no reference to gout or uric acid as a causative factor in the disease. Experienced physicians cannot fail to have observed the close relation between the gouty, uric acid diathesis and these spasmodic diseases of the air passages and how promptly they are relieved and definitely prevented by free purgation and flushing of the kidneys and sweat glands. —Editor, GAILLARD'S.]

NOTES ON THE ENEMATA EMPLOYED AFTER ABDOMINAL SECTION.

Hunter Robb states in the *Cleveland Medical Gazette* for September, 1900, that for the thirst which is sometimes so distressing after an abdominal section, an enema consisting of 500 cubic centimeters (one pint) of tepid water may be slowly administered, being repeated if necessary.

Nutritive enemata are often employed at intervals of three or four hours. They should not be given more frequently than this for fear of rendering the rectum intolerant of them. The enemata should consist of milk with whiskey or brandy, together with white of egg and a little common table salt. The following proportions make a good combination, and may be given by means of a hard-rubber syringe or through a rectal tube:

Peptonized milk	30 Cc. (f℥j)
Whiskey	30 Cc. (f℥j)
The whites of two eggs.	
Common table salt	1.5 (grs. xxiv)

The rectum should be thoroughly irrigated every morning with warm physiological salt solution, which will keep it clean, so that the nutritive enemata will be beter absorbed.

For opening the bowels a high enema consisting of 500 cubic centimeters (one pint) of soap-suds in warm water should be given. The rectal tube having been introduced well up into the rectum, the mixture of soap-suds and warm water is poured into a glass funnel attached to the external end and allowed to run slowly into the bowel. Sometimes a liter can be introduced in this way. If the enema does not prove effectual, it may be repeated after three or four hours, or we may substitute one consisting of warm water, oil, and turpentine, in the following proportions:

Plain warm water..................................	500 Cc. (Oj)
Olive oil..	60 Cc. (f ℥ij)
Turpentine, from two teaspoonfuls to a tablespoonful.	

This may be repeated once or twice at intervals of two or three hours, but generally the first enema is followed by a satisfactory evacuation of the bowels. If preferred, from 120 to 180 cubic centimeters (4 to 6 ounces) of warm olive oil or glycerine may be first injected in order to soften any fecal matter that is in the rectum, an enema of soap-suds and warm water being given an hour or so later. Occasionally the addition of an ounce of Epsom salts to a pint of warm soap-suds and water will prove effectual when other enemata have failed.

In a series of 114 consecutive, unselected, abdominal sections without a death one or more of the above enemata were employed as a routine practice.

THE TREATMENT OF INFLUENZA.*

By W. H. THOMSON, M.D., LL.D., New York,
Physician to the Roosevelt Hospital.

Much stress was laid in former years on the doctrine of change of type in acute diseases. It was supposed among our forefathers, for example, that pneumonia was of a high sthenic type, and that the reason why vigorous antiphlogistic measures, so-called, were no longer as successful in modern practice as in previous generations was because of a change in the type of the disease itself. A plausible support to this theory was the undoubted difference in severity from one year to another of prevailing epidemics of the exanthemata, but, on the other hand, in these affections, when the comparison is instituted over a series of years instead of between two successive seasons, it is plain that they have altered but little, if at all, from the times of their first recognition in medical literature.

A present exception to this statement, however, I think can be made out in the case of the influenza. Its epidemic prevalence in this city and throughout the country during the past month is about as extensive as it was when it made its first invasion, in 1889-1890. But nothing is more certain than that its clinical accompaniments now are much milder, as a few illustrations from my own personal experience will suffice to show.

In 1890 numerous suicides were reported of persons attacked by the grippe, one of whom was a valued personal friend of mine and who, without the least known reason to his friends, and evidently when impelled by a very sudden impulse, threw himself out of a window. I also had four cases of sudden insanity, all delusional in character, in no case with symptoms of acute mania, and all very transient except the last, which continued for some months and gave rise to legal complications. I saw in consultation two cases of chronic meningitis with very serious sequelæ which followed influenza, and a very considerable number of cases of neuritis, both of nerve trunks and of obstinate peripheral neuritis. In one case, also with chronic cerebral symptoms, accompanied by dilated pupils for several months, before recovery very extensive desquamation of the skin occurred. I also met with three cases of extraordinary acute gastritis, one of them rapidly fatal. Several cases also of the most profuse sweating that I have ever witnessed, one being that of a lady, in which it dripped from the bed upon the floor. Also several cases of acute nephritis, one in a physician which ended in chronic Bright's disease, and so on. In short, a more universal and virulent poison than this infection appeared to be on its first visitation has hardly been recorded in the annals of medicine; for, though cholera, yellow fever, and the plague have each been at times more destructive of life, yet they are always very specific and well-defined in their symptomatology according to their own special lesions, while influenza seemed to make its attack along the whole line as it listed.

---

*Read before the Section of Medicine of the New York Academy of Medicine, January 15, 1901.

My own personal experience with my first and only attack was in that epidemic, when, without any warning whatever, while I was returning in my carriage from a consultation in a case of grippe pneumonia, I felt as if a disc of iron had transfixed my temples. It as with difficulty when I got home that I reached my bed. Excruciating pains in the back and limbs, high fever, and a sense of intense prostration lasted through the night and all the next day. The catarrhal symptoms were very slight. In three days I was able to sit up, but there then followed an experience which hundreds that winter described as their own also after *la grippe.* For fully six weeks I felt as weak in my muscular system as if I had suddenly passed 70 years of age. It was not so much that I would be easily exhausted by muscular exertion as that I did not seem able to exert myself from the start, but rather seemed to have all the debility of advanced life settled upon me.

The other attendants of the influenza are familiar to all and seem due primarily to general diminution of the resisting power of the system to bacterial invasion. We may, in fact, regard this lowering of vital resistance as one of the most serious results of this infection at all times. Pneumonias occurred with all the characteristics of the lobar or croupous variety, and were exceptionally fatal.

Broncho-pneumonia, of course, followed suit, engrafted upon the influenzal catarrh, and carried off multitudes of the aged. Pulmonary phthisis increased to more than double its usual prevalence, and whoever had a vulnerable part in his body was very likely to have his trouble there greatly aggravated. In many a fatal case of chronic disease the beginning of the end would be very probably dated from an attack of the influenza.

On the other hand, my experience in the present epidemic has been that of meeting with very numerous cases of simple catarrhal fever, beginning as often gradually as suddenly with malaise, chilliness, coryza, and bronchitis, accompanied with the usual train of achings in the head, back, and limbs—in short, with all the characteristics of a severe old-fashioned cold, with an increased tendency to general debility. As might be expected, the most common of the serious complications are connected with the bronchi and lungs.

Now, I scarcely believe that this change in the clinical aspects of the disease is owing to any change in the character or properties of the specific bacillus which is the cause of the infection, but rather that it is due to the same kind of modification in the system of those at present attacked which a previous vaccination causes in a subsequent infection of variola. When we consider how great the number now is in any community who have had one or more attacks of the influenza since 1890, the greater the probability is that those previous attacks have rendered them less susceptible to the worst effects of the infection, so that it now develops in them in a milder form. I am the more confirmed in this inference by two cases which I have lately seen which presented the same severe constitutional conditions which were so common in the first epidemic, and both these patients had never experienced an attack of influenza before. Moreover, I am of the impression that in young children it is this year relatively more severe than in adults.

As to treatment, my own experience and sensations during my illness with this complaint led me to deal with it symptomatically somewhat on the following lines, and, as we do not yet possess either antidote or antitoxine for the poison of Pfeiffer's bacillus, we can only prescribe for its symptoms. In the first place, I have long relied upon aconite as the best remedy with which I am acquainted for the general achings which characterize the onset of so many febrile infections. Not only is it one of our most effective analgetics for this class of pains, but it counteracts the accompanying vascular derangements, particularly of the upper respiratory tract. I believe that I have often aborted an acute tonsilitis by administering early a dose of the tincture of aconite sufficient to cause this drug specific sense of constriction in the throat. At the beginning of the febrile infections, including that of croupous pneumonia, aconite has seemed to me not only to relieve the systemic pains, but to modify much for the better any local capillary stasis setting in with the onset of the fever. The heart, under its influence, becomes much quiter and the pulse softer; all results more than temporarily beneficial, as the subsequent course of such acute affections often appears to be better for timely dealing with the initial derangements. This particular action of aconite seems to me further promoted by the addition of a small dose of Dover's powder.

One member of the coal-tar series has also proved in my hands very serviceable in these febrile pains, and that is phenacetine, because its analgetic action, especially when combined with aconite, is more marked in influenza than in any other affection. I would not give it in influenza in doses sufficient to reduce temperature, for temperature here is a very secondary matter; and, moreover, in antipyretic doses it may have the undesirable effect of weakening muscular function, which, in the case of the heart, is to be dreaded in a grippe bronchitis or pneumonia. But, combined with quinine, it may have another action also, namely, these two drugs may not improbably act as true anti-toxines to the influenza poison. There is no *a priori* reason why these blood antiseptics may not be effective as such against this infection, and only experiment can determine the question. My own experience is decidedly in favor of this hypothesis, for these combined agents have seemed to me to mitigate the symptoms and to prevent the sequelæ of the disease, evidently not by their antipyretic properties, but by a specific neutralization of its effects, as is indicated by the less favorable course of those cases in which these medicines have not been taken.

Influenced by these considerations, I devised for my own case while suffering from the grippe a prescription containing in each dose 1-6 of a grain of solid extract of aconite, 1 grain of Dover's powder; 4 grains of phenacetine, and 3 grains of quinine, made into two pills; three doses, or six pills, to be taken on the first day of the attack, and continued daily as long as a febrile temperature lasted. As soon as the temperature declines, whether on the second day or subsequently, the dose is reduced by one pill a day, till three, or one-half the first daily dose, are taken, and this is continued until all catarrhal symptoms have subsided. My experience with this prescription was so uniformly favorable that I often had occasion to recommend it in consultation, with the result that by the request of different physicians, the wholesale firm of the Messrs. Schieffelin & Co., in this city, have put up the prescription under the name of the compound phenacetine pill, the formula for which is printed on the labels upon the bottles. Owing, apparently, to the extensive sale of these pills, they are also manufactured by McKesson & Robbins, of this city; Upton & Co., of Kalamazoo, Mich., and other wholesale druggists. Some patients who are very susceptible to aconite find the dose in this formula causes numbness and tingling, in which case its proportion may be reduced.

When coryza and nasal catarrh are leading symptoms the peculiarity is often developed in influenza of a sudden shifting of the trouble from the nasal passages to the trachea and then back again. In such conditions a pill of a quarter of a grain of extract of belladonna with a grain or two of camphor seems to afford relief. To this should be added a flushing of the throat by a fountain or a Davidson syringe with a quart of hot water in which two teaspoonsful of potassium chlorate and five drops of oil of peppermint are dissolved. This measure often affords a marked relief by causing a great flow of mucus from both nose and thorax with the return current from the mouth. On the other hand, a very troublesome complication occasionally occurs by the supra-orbital sinuses becoming involved, with attacks of excruciating pain and often photophobia. It is curious that these pains are very commonly periodical, commencing at a definite time in the forenoon and measurably subsiding at night. The specific for these pains is the fluid extract of ergot, in drachm doses, repeated every three hours if necessary. The addition of a drachm of elixir of cinchona makes it better borne by the stomach. I once published a paper on the use of ergot in periodical neuralgias, not necessarily confined to the head, and in 1890 I had frequent illustrations of its curative powers in these pains following influenza whose seat was sometimes in the sides of the thorax, in the abdomen, and in the sacrum or pelvis. In each case morphine hypodermically, with large doses of quinine, Warburg's tincture, etc., had been unavailingly prescribed, while the ergot afforded immediate relief.

One accompaniment, or sequel, rather, of influenza may be mentioned here, and that is the supervention of a markedly paroxysmal dry cough which has nothing to do with bronchitis, but is evidently of a nervous character and which may persist for weeks after other symptoms have subsided. It is apt to be especially troublesome at night. I have generally found it yield to doses of twenty grains of the ammonium bromide with ten of antipyrine.

In no other infection does an intercurrent bronchitis so often become serious as in influenza, particularly in patients past middle life, with more or less endarteritis and habitually high-tension pulse. The course of the affection very commonly is that after a week or more of the ordinary catarrhal symptoms, the temperature rises rather suddenly from 99° to 102° or 103° F. The cough may then become less frequent but more severe when it does occur. Insomnia then may be much complained of, and the physician be disappointed at his morning call by the discouragement of his patient from passing such a bad night. He changes his remedies from day to day only to find each improvement very temporary and a bad relapse follow. After a time disquieting signs of respiratory failure develop, with the constant presence of râles at both bases along with lessening power of expectoration. This condition calls for active treatment, and it is well to note what the chief elements in its production may be. I have long thought that the influence of the mechanical factor of unexpelled viscid mucus in the smaller bronchi has been too much overlooked in accounting for the graver symptoms in bronchitis. When we note the inevitable and peculiar pneumonia which follows the plugging of a main bronchus by a foreign body, it seems natural to infer that a like occlusion of the smaller bronchi by tough plugs of secretion will entail a local pneumonia of the same kind in the areas supplied by these bronchi, and it is the supervention of this condition which is marked, as I believe, by the new rise of temperature. This broncho-pneumonia, therefore, is not by an extension of the catarrhal process itself from the bronchi to the air lobules, but rather is allied to the serious mechanical pneumonia of occlusion, which, as is well known, disorganizes the delicate structure of the air-vesicles and soon implicates the interstitial tissues with consequent frequent caseation of the inflammatory products. The chief indications for treatment, therefore, would seem to be to liquefy the retained secretions as effectively as possible, and simultaneously to stimulate the function of expectoration. It is remarkable how easily the bronchial tract is sometimes freed from contents which are really fluid, as we often note a copious bronchial hemorrhage got rid of with so little coughing that the patient may be uncertain whether the blood came from the lungs at all. Now, I have been struck with the apparent failure of the preparations of ammonia to subserve this purpose of promoting expectoration when the inflammation has reached the smaller tubes, compared with their apparent benefit in inflammation of the trachea and larger bronchi. My own remedy, whih I have oftecn advocated for the past twenty-five years for converting a viscid bronchial secretion into a freely flowing liquid, is the emulsion of linseed oil. This emulsion is now sold extensively throughout the country as a proprietary article, and during the past year I have been in frequent receipt of other linseed emulsions made and sold as proprietary articles by druggists both in this and in other cities. All that I wish to say about it now is that I do not know of any so-called expectorant in bronchitis which equals it, as I have lately had occasion to note in consultation cases of influenza when other remedies for this purpose had been previously fully but vainly tried. I always add to each dose of the emulsion a twelfth of a grain of morphine and eight grains of chloral, simply because the nervous element of irregular bronchial muscular action is always a hindrance to efficient expectoration in bronchitis.

Adjuvants which should not by any means be neglected are, first, thorough dry cupping of the chest, both anteriorly and posteriorly. We scarcely possess a more powerful stimulant to the bronchial muscles than the peculiar reflex action of this cutaneous impression, both to restore their rhythm, as is shown by the prompt arrest of the sibilant wheeze, and by increased power of both acts of respiration following it. We should not be afraid of repeating this application too often, but the weak cupping by glasses with rubber bulbs is wholly useless. Following the cupping, the stimulant action of large cloths applied to the surface of the chest, wet with the infusion of capsicum, made with a drachm to the pint of boiling water, is quite preferable to mustard, as it does not occasion vesication or an intractable sore. It is well to keep up such cutaneous stimulation for a long time, because the patient who has once had a bronchitis develop basal râles is not likely to cease coughing for weeks. One of my prescriptions for this purpose is a liniment of one part each of aqua ammoniæ, oleum terebinthinæ, and tincture of capsicum, with three parts of linimentum saponis. For the tedious debility which follows influenza I rely mainly on the fluid extract of cocoa with nux vomica. Inhalation of oxygen is also often serviceable if administered with a funnel over the nose and mouth as in administering ether. The usual method of simply holding the tube to the nostrils scarcely gives the patient any appreciable amount of the gas.

It should always be impressed upon the patient, as soon as the diagnosis of influenza is made, that he should at once go to bed and stay there till further orders. A slight attack of influenza scarcely ever means the same thing as a slight attack of illness, any more than a mild scarlatina ever means that it is really mild. A slight influenza may cost the patient his life, all the same, for we are continually meeting with cases of fatal complications developing after the most moderate beginnings of this infection. Rest in bed is quite enough for most persons to get well of influenza without any medicines, if they will only take this prescription faithfully to the end. But the majority wish to get out too soon, it may be to attend a dancing party, when they succeed in furthering the epidemic spread of an infection which is every whit as catching as measles.

In acute illnesses, such as typhoid fever, pneumonia, etc., the value of a diet which is not only nourishing, but of which the patient will not tire, is of prime importance.

Whey, milk, junkett, broths, etc., all have their place, and are good for temporary use, but Eskay's Albumenized Food, when properly prepared, is relished throughout the course of the disease.

It is also the most valuable of nutrients.

GAILLARD'S MEDICAL JOURNAL.

A MONTHLY JOURNAL OF MEDICINE AND SURGERY

Scientia et Veritas Sine Timore.

PUBLISHED BY THE NEW YORK MEDICAL PUBLISHING CO.,
116 Nassau Street, NEW YORK.

All communications, of either business or editorial character, should be addressed to Gaillard's Medical Journal, 116 Nassau St., New York.

Articles for publication will be received with the understanding that they are contributed exclusively to this journal. Reprints will be furnished at actual cost, orders for which should accompany the manuscript. Authors of accepted articles may receive twelve copies of the issue in which they are published. Necessary illustrations will be furnished without expense to authors when suitable drawings or photographs are furnished.

EDITORIAL.

One of the most remarkable innovations of the year that has just closed was the introduction into the country of a method of inducing a temporary anæsthesia of a part of the body by injecting a solution of cocaine hydrochlorate into the spinal canal.

The reports of the first few cases done, were given a wide publicity in medical journals throughout the country, and reports of a larger and larger number of cases are coming in every day. We may expect this number to be considerably increased during the coming year.

The operation carries on its face dangers enough to make the bravest hesitate, and, although there have been very few casualties reported so far, the medical press has sounded a note of warning loud and clear.

When one considers what the dangers are—cocaine poisoning, infection of the spinal canal and meningitis, permanent injury to the cord or its membranes—one is inclined to stop and think. In the matter of poisoning by the drugs, the occasional, unexpected, always alarming and sometimes serious cases in which an individual idiosyncrasy is discovered after subcutaneous injection for local anæsthesia, need only be mentioned.

It would seem now that infection might be wholly avoided by careful aseptic technique. It is to be hoped that none will occur. The question as to the nature and degree of permanent damage to the cord following the procedure is one that we must wait for time and the neurologists to answer for us.

There is one particular in which some of the reports of cases have been rather unsatisfactorily brief, and that is the immediate sequelæ of the operation. Have the nausea, the headache and the shock been less on the whole than they would have been following nitrous oxide and ether?

In some cases they have been less; in some cases they have been more; what has been the usual, the mean result?

It appears to us that unless it becomes evident that these after effects are generally and consistently less than those following narcosis by means of ether, that that, of itself, would be enough to condemn the method for general surgical work.

Moreover we can see no advantage in the fact that by this method the patient's consciousness is preserved. An operating room is not, under the best of circumstances, a cheery place for anyone. For the patient undergoing spinal anæsthetization, the instrument, the gowns, the solutions, and all the elaborate preparations, as well as the labored technique of the surgery itself, must form a veritable ritual of horror.

The narcosis of the patient is merciful and desirable for other reasons as well.

The advantages, the disadvantages, and the dangers of the new method are to be much more fully investigated by men thoroughly trained and equipped for such work before it is to be recommended to the profession at large as in any way a substitute for ether or chloroform.

Let us work toward the truth; slowly, carefully, and with the good of our patients always at heart.

* * * *

Following the introduction of cocaine hydrochlorate into the spinal canal for the production of anæsthesia, we may expect to see other drugs thrown along that track with more or less definite ends in view.

It is already recorded that antipyrin and beta eucain have been tried as substitutes for cocaine. The antipyrin, we believe, was not an unqualified success. The beta eucain is reported successful.

Soon someone, we expect, will be inspired to attack the diseases of the cord by that route.

Shall it be locomotor ataxia? Why? Why not? Shall we use bichloride of mercury or silver nitrate? Why? Why not?

Gentlemen, we beg of you, try it on a dog.

The epidemic of influenza that we have come to expect as a regular yearly visitant is now at its height in New York and its vicinity. From St. Petersburg comes the news that it is there in an unusually severe form. From Chicago the report is mild.

So far as we know, the disease has run a rather mild course here this year. However, it is not over yet, and influenza would seem to be a disease particularly capable of doing unexpected things.

So far in the history of the epidemics that have come to us every winter since 1889 there has been some one feature to mark especially the influenza of each year.

During one epidemic the pulmonary complications were unusually prevalent. In another the gastro enteric form prevailed. In yet another the nervous phenomena were remarkably common and severe. In all of them the disease has vindicated its kaleidoscopic reputation.

Last year there were noted a number of skin rashes during the course of influenza, a symptom that has not been widely noted in this country before. Similar rashes had been previously reported from Germany and London. It will be interesting to note if there is a recurrence of such skin modifications this year. We shall be pleased to hear from our readers on this matter.

. The diagnosis of grippe is a matter to which we would call the attention of our readers. It is so easy to make such a diagnosis at this time of year. So hard to controvert, save after the lapse of a little time. How many mild cases one sees! How many of them have a feeling of justified diagnosis behind them? And yet influenza is a serious disease; it increases the death rate—that we know. It carries a host of sequelæ more or less grave in its train. It would be good for us all if an absolute diagnosis could be made early in its course. If in short, it were possible to recognize the bacillus of Pfeiffer in the sputum with even the same degree of accuracy as the Klebs-Loeffler organism in diphtheria.

That method of clearing one's mind being impossible in many instances, however, it might be well to be positive of certain symptoms almost characteristic before giving a diagnosis, and when that is made, to treat the case with more gravity than "Oh, a little grippy cold."

The diagnosis depends (Solinger Kaltezer) upon the occurrence of an epidemic, and a few sporadic cases may be expected to appear after the epidemic has run its course. The sudden onset, usually with chill and pains in bones and back; the fever; the typical post-orbital headache, the pronounced rhinitis laryngitis, usually with profuse, thick, purulent mucous discharge; the great depression and the tendency of this to persist, make the picture.

Let us be as accurate and as conservative in the matter as we can.

THE ASHEVILLE MEETING.

At the second day's session of the Mississippi Valley Medical Association, held at Battery Park Hotel, Asheville, N. C., October 10, 1900, Dr. Harold N. Moyer, of Chicago, President, in the Chair, Dr. Henry E. Tuley, of Louisville, at the Secretary's desk, immediately preceding the delivery of the annual oration in medicine by Dr. I. N. Love, to whom the Executive Committee assigned this honor for 1900, Dr. H. O. Walker (ex-president of the association), of Detroit, Mich., arose and offered the following:

Whereas, Dr. I. N. Love, an honored ex-president of the Mississippi Valley Medical Association, has been called from St. Louis (his home since childhood) to the department of Internal Medicine in the Post-Graduate Medical School and Hospital, and larger labors and opportunities to practice in New York City, therefore, be it

Resolved, The members of this Association endorse Dr. Love for his worth and working powers of head and heart and commend him to his colleagues in his new field, and bespeak for him the great success he deserves and his equipment and extended reputation as teacher, writer and practitioner justify him in expecting.

Dr. Joseph M. Mathews, of Louisville, former president of the Association, in moving the adoption of the resolution by a standing vote, said:

"Mr. President and Gentlemen: When one moves from the field where he has labored since childhood and has achieved the place of eminence that Dr. Love has done, it is indeed an important step, and we doctors of the Mississippi Valley with heart and hand wish him Godspeed and the reaping of a harvest that may more than satisfy him in New York, but he must remember that he will always remain one of us, for we all love *Love*."

A rising vote was then taken and the resolution declared unanimously adopted.

Before proceeding with his regular address Dr. Love said in response:

"Mr. President and Fellow-Comrades of the Mississippi Valley Medical Association: You have honored me many times in the past, but let me say briefly before proceeding to perform the duty assigned me for the meeting of 1900, which in itself is a great honor, that this last expression of your kindness and loving interest overwhelms me. My soul is too full for utterance, but wherever the rest of my anatomy may be located in all the coming years, my heart will be in close touch with my noble friends of the territory drained by the mighty Father of Waters running from Lake Itasca to the Mexican Gulf, for I love you with all my soul and with all my mind.

"I thank you."

[From the Cincinnati *Lancet-Clinic*, October 27, 1900.]

GAILLARD'S MEDICAL JOURNAL.

VOL. LXXIV. NEW YORK, FEBRUARY, 1901. NO. 2.

EVERY-DAY HEADACHES.*

By HUGH T. PATRICK, M.D.,

Professor of Neurology in the Chicago Polyclinic; Professor of Clinical Neurology, Northwestern University Medical School, etc., Chicago.

Of the many unpleasant incidents to which human flesh is heir, few never cause headache, and no complaint which brings patient to physician requires for its complete understanding a wider range of accurate knowledge or larger measure of diagnostic acumen than does this same symptom; and for its relief none needs a wiser adaption of means to ends. Indeed, I have known a long series of excellent general practitioners and skilful specialists to be led humiliated captives by one petty ache in the head.

Obviously, a twenty-minute paper cannot be a treatise on headache with all its confusing intricacies; my present aim is to present for your discussion a few practical considerations on two of those cephalalgias which daily come to the doctor, be he internalist or dermatologist, gynecologist, laryngologist, ophthalmologist, proctologist, or family physician.

Every-day headaches may be considered to be those of:

1. Infection and toxemia (fever, Bright's disease, constipation, etc.).
2. Neurasthenia.
3. Migraine.
4. Eye-strain.
5. Anemia.

Classes 1, 4, and 5 are tolerably well understood; complications aside, diagnosis and treatment are relatively simple. A careful clinical examination, to which every patient is entitled, will nearly always reveal the cause, and removal of the cause cures the headache.

The head pains of migraine and neurasthenia seem to share the contempt born of familiarity. Every member of this society is repeatedly called upon to treat, or at least to diagnosticate, these two diseases, and yet how few really know much about them or even make a conscientious effort at knowledge of their peculiarities.

Headache of Neurasthenia.—To use a Hibernianism, the most striking peculiarity of a neurasthenic pain in the head is that it is no pain at all. The patient would probably feel this paradoxical statement to be a personal affront, or would at least term it a characteristic medical absurdity. Nevertheless it holds good. However bitterly the victim may complain of his head, however truly and constantly he may suffer, the fact remains that careful inquiry will nearly always show the headache to be not a hurt, but a distress or discomfort. Be it at once understood that this does not minimize the affliction, for in the same breath with which the patient acknowledges that it is not exactly a pain, he will earnestly and honestly aver that he would ten times rather have a regular pain. What he has is a sense of pressure or constriction or expansion; a feeling of heaviness, of lightness, of fulness or emptiness; a sensation as of a foreign body within the cranium, or as if there were a vacuous cavity which needed filling. The foreign body complained of may appear to be liquid or solid, loose or fixed, and the conviction of its presence be so complete that the patient demands operation for its removal. A frequent complaint is of a feeling that there is some material hindrance to mental effort—an intense appreciation of some obstruction to brain action. Sometimes this is described as a veil screen, or cloud that darkens and retards all intellectual activity, or the plaint is simply of a dull, deep-seated, frontal, occipital, or temporal *something* which the sufferer is unable to define with nicety. Altogether too frequently one hears about a pressure at (or on) "the base of the brain," a glamoring expression which emanated, I regret to say, from the medical profession, and which, notwithstanding its utter absurdity, still lingers in the nomenclature of our submerged fifth.

---

*Read before the Illinois State Medical Society, May 14, 1900.

In my experience a geometrical pain means neurasthenia or something allied to it. By geometrical pains, I mean those in points, lines, squares, circular areas, parallelograms, triangles, etc. But here again it is to be remarked that a geometrical pain is rarely a veritable pain, but rather a pressure, or a heat, or a coldness, or a drawing, or some other dolorous paresthesia.

Notably peculiar is the negative attribute of neurasthenic headache that, no matter how severe it may be, it allows the sufferer to sleep. As a matter of course the subject of neurasthenia may sleep insufficiently and sleep poorly, but it is not pain in the head that keeps him awake. Whenever a headache is so intense as of itself to prevent sleep, some cause besides neurasthenia is at work. Naturally, a neurasthenic may have such a headache in addition to his legitimate perquisite.

Not very unusually a neurasthenic discomfort is identical in kind and location with the distress of asthenopia. The patient suffers from intense weariness of the eyes; with a dull ache felt behind or over them; with a sense of bulging or tenseness of the bulbs or of pressure in the sockets, perhaps accompanied by superficial burning; although this distress is induced or greatly intensified by reading, glasses give no relief, or at least an amelioration so transient as to allow the conclusion that the distress is of purely neurasthenic origin, possibly with the addition of a physic method.

More than any other headache, except the hysterical one, is that of neurasthenia amenable to diversion. Oftentimes this fact is apparent to friends when not to the patient, but the sufferer himself is apt to notice it and to be puzzled by it, and its apparent inconsistency with real disease may cause him to accuse himself of hysteria or "imagination." Unfortunately it has been known to mislead the practitioner of medicine as well; he cannot give credence, or even serious consideration to a headache which disappears before the mild excitement of social intercourse or the preoccupation of absorbing business, to reappear on the first opportunity of undisturbed self-contemplation; but such are the traits of many a neurasthenic headache.

With the exception of such transient relief as may be obtained by medicines or diversion, the headache of neurasthenia tends to be constant or nearly so. Patients who are "always conscious that they have a head," are "never free from headache," "have not a moment's peace," "have had a headache for three years," etc., are nearly always neurasthenics, and this continuousness separates their headache sharply from migraine and neuralgia. He who has a headache for three months is pretty sure to be suffering from neurasthenia, or from grave organic disease

The only proper treatment of neurasthenic headaches is treatment of the neurasthenia. Simply alleviation of the symptom to the neglect of the causal condition is to be roundly condemned. The relief so obtained is incomplete, transitory, and only makes the case worse afterward. In the rational handling of such a case the cephalic distress is to be practically ignored, with the assurance that when the neurasthenia is cured the head trouble will have vanished. For many reasons, however, it may be good policy to administer palliative treatment until there is time for more radical measures to become effective; to put in a temporary prop—a prop to hold the confidence as well as the comfort of the patient—until a permanent support can be built up. For this purpose bromide of potassium or sodium is ordinarily the best drug, but enough must be given to be effective. I have no patience with the routine prescribers of five-grain doses of bromide. In the absence of idiosyncrasy, I would as readily join our little-pills brethren and give the tenth dilution of bryonia or pulsatilla. Twenty to forty grains three times daily is about the right amount, and although chemically strychnine is incompatible with the bromides, and physiologically is supposed to be antagonistic, I often give both drugs, I know, with good effect.[1] Ordinarily they are not combined in the same mixture, as the strychnine is precipitated.

The radical treatment of neurasthenia is a large, a very large, subject, and cannot be considered here. Some suggestions may be found in a paper I read before this society[2] two years ago, but a common-sense, thoughtful consideration of the nature of the disease, with careful study of each individual case, will generally supply all necessary indications. Rest, proper food properly given, systematically graduated exercise, mental discipline, outdoor life, adequate sleep, baths—in short, the very best obtainable mental and physical hygiene—must be the foundation of all treatment.

Headache of Migraine.—Of all the common nervous diseases which are currently misunderstood, little understood, or not understood at all, migraine easily leads the van. Even in this day and generation, years after the classic work of Liveing (1873), and notwithstanding the later labors of Charcot, Weir, Mitchell, Sinkler, Möbius, and a host of others, it seems necessary to affirm, reaffirm, and reiterate the statement that migraine is exceedingly frequent, and that it is *not* neuralgia, gastric headache, bilious headache, or nervous prostration headache; that it is not a reflex pain from nasal disease or ocular anomalies; that it is neither the headache of intestinal absorption nor simply uric acid poisoning—the much-touted assumptious assertions of Haig to the contrary notwithstanding. It is as distinct from neuralgia as is typhoid fever from malaria, although the same patient may have neuralgia and migraine. As I have already hinted, and as I should like to emphasize, migraine is not the cephalalgia of neurasthenia and brain fag. Least of all, it is a reflex neurosis from the pelvis—the far-fetched cry of a tortured uterus or the ventriloquistic wail of that gigantic myth of would-be gynecologists, the ever-feared, oft-predicted, and never-seen *bete noire*, "ovarian irritation."

---

[1] As a matter of fact, in their primary and most important action they are not antagonists at all.

[2] Remarks on the Treatment of Neurasthenia. Transactions Illinois State Medical Society, 1898; or *Medicine*, March, 1899.

If migraine is none of these, what is it? Well, as in the case of love or monistic philosophy, it is easier to say what it is not than to tell what it is; like hysteria or Presbyterianism, it is more easily described than defined. As nearly as is any functional disease, it is a distinct pathological entity, the specific result of causes not yet known, but aggravated by manifold unwholesome agents; indeed, by any influence that tends to depreciate the general health and lessen the resistance of the nervous structures involved.

The most important etiological factor, at least far and away the most constant one, is heredity. This particular headache descends from parent to child, generation after generation, with greater frequency and more persistency than any other disease, not even excepting tuberculosis; and this, regardless of bad stomachs, poor eyes sluggish bowels, rheumatism, gout, crooked septæ, tipped uteri, and sclerotic ovaries. In an analysis of fifty consecutive cases, my friend, Dr. Samuel J. Walker,[1] found evidence of more or less direct heredity in about 95 per cent. This, then, is the first characteristic of migraine, viz., heredity.

Quite in harmony with the fact of its inheritance, and almost pathognomonic of the affection, are its precocious inception and long continuance. Scores of patients between 40 and 50 have told me that they had suffered from headaches ever since they could remember. Even children and young people in their teens may be unable to recollect a time when they were not subject to attacks of cephalalgia. For many women the disease disappears at about the time of the menopause, and a fair porportion of male sufferers get rid of the plague at about the age of 60, but many of the bad cases continue unabated into old age; half a lifetime is a low average of its duration.

Unlike neurasthenic headache, the pain of migraine is severe; a distinct and unmistakable hurt, and in the majority of instances disables the patient during its continuance. Almost peculiar to this particular headache is its more or less irregular periodicity; its appearance in distinct attacks, separated by entirely free intervals. When the disease has existed for years the intervals may become so short that the sufferer has almost continuous headache, or the attacks may be so frequent that the patient, worn out with pain and loss of sleep, acquires a constant neurasthenic headache in addition to his migraine; but these are exceptional cases, and in the earlier years the rule of irregular periodicity always holds good.

---

[1] *Journal of the American Medical Association*, Sept. 30, 1899, p. 839.

In strong contrast to typical neuralgia, the pain of migraine is not intermittent or even strikingly paroxysmal; it may throb somewhat, but for the most part is a steady, intense pain. The subjects generally describe it as deep-seated—never as distinctly superficial—although after an attack the scalp may be tender, especially to slight sensory stimuli, such as combing the hair.

For the first ten years after the beginning of a migraine, the attacks rarely last longer than twelve hours, and they are pretty distinctly diurnal; that is, they begin in the morning or during the day, or may even begin in the night and last through the day, but when the patient goes to bed he goes to sleep, and the next morning finds that his headache has disappeared.

I say *his* headache, not because migraine has a predilection for men—indeed, it more frequently attacks women—but because every person's migraine has something idiosyncratic about it; it is always the same old thing, and the patient always speaks of it as "*my* headache," "*my* neuralgia," "*my* bilious attack," etc., according to his own ideas as to what it should be called, but always with the understanding that it is peculiarly his. If, perchance, from some cause or other he has a different headache he knows it at once for an alien, while at every approach of a migrainous attack he instantly recognizes the individuality of his lifelong enemy.

I have tried to make unequivocal the assertion that migraine is neither simply a manifestation of uric acid intoxication or intestinal absorption, nor pain begotten of disease in the nose, stomach, or uterus; that it is not the cephalic distress of nervous prostration; not the voice of anemia; not the signal of organic disease—but be it distinctly understood that the attacks may be made more frequent and severe, may even be clearly determined by any such disturbing influences. A man who is accustomed to have a migrainous seizure about once a month may have one every week if he indulge in undue dissipation or be subjected to great mental strain, loss of sleep, the debilitation of general disease, or the deleterious effects of poisons.

Negatively, it is to be said that migrainous headache need not be accompanied by nausea or vomiting; that although sometimes called hemicrania, the pain need not be one-sided; and that although often associated with disturbances of general sensation or special senses, such accompaniments are not uniform. Furthermore, it may be well to state that ophthalmic migraine—that is, migraine accompanied by scintillating scotoma, central scotoma, hemianopia, and the like—is no more caused by ocular anomalies than are migrainous headaches unattended by visual symptoms.

In my own experience migrain is most frequently miscalled neuralgia, gastric headache, and nervous headache. To be sure, it really is a nervous headache, but generally thereby is meant a head pain simply as part of general nervousness, or caused by some mental or emotional perturbation, whereas such relation in migraine is exceptional. Considering the many distinctive traits of this headache and its extreme commonness, the frequent failure to recognize it would appear almost humorous were it not humiliating. Therefore, before saying a word or two as to treatment, I venture to catalogue the most prominent of its distinguishing features—features that make confusion of this affection with any other practically impossible.

1. Hereditary, more often on the mother's side.
2. Inception, generally under 15, nearly always under 20.
3. Attacks, at first two or three times a year to once a month; later, once in two months or two per week.
4. Duration of attack, six to thirty-six hours.
5. Freedom from pain in intervals.
6. Continuance of affection through many years.
7. Pain severe; nausea or vomiting rather frequent.
8. Prodromes not infrequent, and nearly always the same for each individual.
9. Accompaniments of visual, senory, or speech symptoms almost pathognomonic, but not often present.
10. During continuance does not admit of sleep.

The rational treatment of migraine may be inferred in large measure from what has been said regarding its nature and etiology. Scrupulous attention to the general health, the best of hygiene, especially hygiene of the nervous system, and careful removal of all local abnormalities which may act as general depletants or as fretters of the nervous system, must be the first care. Possibly ocular anomalies, especially in the young, deserve separate mention. Deplorable though it be, the fact remains that the majority of physicians do not make complete examinations, hence cannot fully treat the patient. This one is very thoughtful as regards eyes; another is intent upon so-called autointoxication; a third scrutinizes the nasal cavities; still another gives a test breakfast and examines the stomach contents with minute care, while the need is for a broad visual field and good judgment. Be it never forgotton that the mere presence of structural anomaly in any part of the body is absolutely innocuous if it does not impair function, and that local disease or abnormity seldom determines attacks of migraine by so-called reflex action, but operates by decreasing vitality, and hence increasing irritability and instability. The septum sawyer, the muscle cutter, the stomach washer, the rectum manipulator, and the castrator, will each have his modicum of success, but his failures will be as legion over against the sporadic good results.

Treatment based on the uric acid theory is a relative failure as far as I have been able to learn by experience and from knowledge of the results of others. Improper diet, imperfect metabolism, and insufficient excretion are all pernicious and always to be reckoned with, but the course advised by Haig—great reduction of proteids ingested, with administration of salicylates, iodide of mercury, etc.—has been singularly ineffective in my hands, and after eliminating faulty diagnosis and the personal equation has seemed to me to be not much more satisfactory in the hands of my colleagues. Even Haig, exalted as he is with his gospel of salvation, does not claim to have cured his own migraine.

In contrast to the discouraging record of operative interference and of treatment based on the various theories of local and toxic etiology, I have neither a new therapy to offer nor brilliant results to record. I have yet to hear of the radical cure of a bad case of typical migraine. As already stated, women not infrequently lose the affliction after the menopause, and men after the age of 60. In the course of clinical histories of nervous patients it is not very exceptional to hear of spontaneous cessation of the disease or of long periods of quiescence, but an unmistakable, deliberate cure must be a great rarity. Considerable amelioration may often be attained, in a few cases so pronounced as to amount to practical cure.

In the medical treatment my own preference is for cannabis indica, on purely empirical grounds. The reasoning of Seguin,[1] who attributed its good effects to "a sedative and even a paralyzing influence on the third cerebral nerve and its attached muscles," seems to me fallacious, and to have quite insufficient basis in fact. Success with this remedy will depend largely upon the recognition of three variant factors; namely, quality of preparations of the drug, difference in individual susceptibility, and substitution by druggists. Some preparations put upon the market by reputable manufacturing firms are worthless; one person may take twenty times as much of the drug as another. I have known three drops of the fluid extract to produce distinct symptoms in a large and vigorous young man, while from the same bottle sixty drops failed to produce the slightest effect in either of two ladies. Physiological effects were reached in different persons by all doses between these extremes. In my experince the fluid extract made by Park, Davis & Co. has proved to be the most satisfactory. Doubtless there are others just as good, but I do not happen to have found them. The initial dose is three or four drops after each meal, and the amount is to be rather rapidly increased until the limit is reached for the case in hand—that is, until distinct physiological effects appear—when the dose is to be diminished just within the limit, and held there indefinitely. Thus given, cannabis indica will materially alleviate the great preponderance of cases. As an example of an unusually good result, I present the following case:

Miss A. H——, 42 years old, a wage-earner, was sent to me on February 22, 1898. She knew very little of her parents, but remembered that her mother had suffered with severe headaches. Her own trouble had begun nine years before as an occasional pain over the right eye, which would last all day and disappear with sleep. At first the attacks occurred only three or four times a year, but gradually they became more frequent and severe, and after four years began to be attended with vomiting. From this time on the disease constituted a serious disability, as the attacks attained a frequency of once a week, or once in two weeks, each attack continuing from two to four days, and during its continuance rendering the patient bedfast. Without exception, the pain was felt in, or behind and above, the right eye, and doubtless it was this rather unusual and constant location that misled previous medical advisers to consider the case one of neuralgia. The infraorbital nerve had been operated on by one physician, and just before the patient came to me, a distinguished surgeon, on the advice of an eminent physician, had proposed to extirpate the Gasserian ganglion. She was given fluid extract of cannabis indica and a saline laxative, the latter being soon changed for a pill of aloes, podophyllin, belladona, and nux vomica, on purpose, to exclude anything which might act by relieving a possible uric acid diathesis. No change was made in diet or other habits. Two days after beginning treatment, she had a "premonition" of an attack in the form of a sensation of quivering or twitching about the right eye, and this was repeated two weeks later. From that time to July 20, 1900, when last seen—a period of two years and five months—she had just one severe attack of migraine. She had, however, five milder attacks, each apparently caused by failure to take the medicine. After two of these, a month apart, I discovered that the druggist was supplying a preparation other than that prescribed; it was made by a prominent Eastern house, but was practically inert. On the other occasions she carelessly omitted the medicine for several weeks at a time. When last seen she had no sign of headache for six months. She has not reached the menopause.

---

[1] *New York Medical Journal*, April 5, 1890.

In several instances I have found even a good preparation of the drug to be entirely without effect upon the disease, and I must confess that in these cases I have not been much more successful with other means, although sometimes a course of bromide, as for epilepsy, or of nitroglycerin, or of the two combined, has been of distinct assistance. Mendel recommends a mixture of sodium salicylate, sodium bromide, and aconitine, and I have found it useful in a few cases when given regularly for a long time.—*Medicius.*

CLINICAL AND EXPERIMENTAL USE OF ORTHOFORM.*

By DR. AUGUST LUXENBURGER,
Assistant to the Surgical Polyclinic of the University of Munich.

Since the first publication, over a year ago, of the reports of Professor Klaussner and Dr. Kallenberger, upon the favorable results obtained with the local anesthetic orthoform, this preparation has been extensively used upon the ample material offered in the surgical ward of the Polyclinic of the University of Munich. It is, therefore, opportune, after these exhaustive experiments, and the collective reports of numerous other authors, to give a conclusive opinion upon this new preparation, which will justify the adoption of orthoform as a remedial agent by the physician, and, particularly, by the surgeon. The surgeon, above all others, demands of a new chemical agent that, next to its primary

---

*Reprint from the *Munchener Medizinische Wochenschrift*, Nos. 2 and 3, 1900.

object—in this case local anesthesia—the remedy should be innocuous, *i. e.*, should neither retard the process of healing or in any way interfere with the general organism.

The strong antiputrefactive quality of orthoform in contact with albumin was pointed out by Kallenberger and corroborated by Mosse, who also mentioned that it was possible to prevent the ammonia fermentation of urine by the addition of orthoform. Of this fact I have been able to convince myself also. An addition of 0.5 per cent. (½ per cent.) of orthoform to urine will not only prevent the ammonia fermentation for weeks, but fermentation already begun may be resisted by this quantity, and fetid smelling urine rendered almost odorless. Alcoholic fermentation, produced by yeast in saccharin urine, is also considerably retarded by orthoform. To further determine the antiseptic properties of orthoform, which were classified by Liebwitz and Sabrazes as "moderate," I instituted a number of experiments with cultures of various micro-organisms, especially those promoting suppuration, with the addition of orthoform, using the customary media for propagation. The results are shown in the following experiments:

Orthoform was strewn upon fresh coatings of agar cultures of bac. pyocaneus, staphylococcus citr., and streptococcus, and the same cultures, for comparison, treated with lycopodium and iodoform. Transplantations showed that under lycopodium and iodoform the cultures flourished without hindrance, while those under orthoform remained sterile. These experiments made with orthoform clusively proved that it possessed the property of arresting the development of bacteria, and it now remained to follow this up and establish the quantitative strength of this property. This was comparatively easy, as orthoform is soluble up to 1 per cent. in agar, gelatine and blood serum, showing a light, yellowish brown discolorations, due to the slightly alkaline reaction of the former.

TABLE No. 1.

Per cent. of Orthoform.	1.0%.	0.5%	0.32%	0.25%	0.17%	0.125%	0.1%	0.05%
Bac. pyocyan.....	No colonies.	No colonies.	No colonies.	Few colonies, sparse.	Light covering.	Thick covering.	Thick extensive covering, no coloring.	Very strong growth, same odor, no coloring.
Staphyl citreus..	No colonies.	No colonies.	No colonies.	No colonies.	Isolated colonies.	Moderate light yellow covering.	Thick yellow covering.	Thick yellow covering.
Streptococcus....	No colonies.	No colonies.	No colonies.	No colonies.	Isolated colonies.	Moderate covering.	Moderate covering.	Plentiful covering.

See results obtained in the following experiments made with orthoform gelatine of the various percentages: Ten c.cm. each of variously prepared gelatines weer inoculated respectively with an iota of bouillon culture of bac. pyocyaneus, staphylococcus aureus, etc., and after being thoroughly incorporated into this medium were poured into equal-sized petri-discs. After standing two days at a temperature of 22 degrees C. the results shown in the following table were obtained:

TABLE NO, 2.

Per cent. of Orthoform.	1.0%	0.5%	0.32%	0.25%	0.17%	0.125%
Bac. pyocyan.............	No colonies.	No colonies.	No colonies.	No colonies.	Average 10 colonies in the field of vision.	Countless colonies, no coloring.
Staphyl. citreus...........	No colonies.	No colonies.	No colonies.	No colonies.	Average 4 colonies in the field of vision.	Average 9 colonies in the field of vision.
Streptococcus............	No colonies.	No colonies.	No colonies.	No colonies.	Average 13 colonies in the field of vision.	Average 35 colonies in the field of vision.

The plates which contained the 0.5 per cent.—0.32 per cent. and 0.25 per cent. (respectively ½ per cent., ⅓ per cent., and ¼ per cent.) of orthoform gelatine, and which had not shown a trace of bacteria growth, were now gradually melted at a degree of 37 degrees C., and the percentage of orthoform reduced to one-third of the former strength by the addition to each of twice the volume of gelatine. After forty-eight hours a more or less luxuriant growth of bacteria was noticed, which proved that 0.5 per cent., 0.32 per cent., and 0.25 per cent. was not sufficient to destroy the germs, although it had checked their growth.

Experiments with blood serum were made with orthoform, and gave the following results.

TABLE NO. 3.

Per cent. of Orthoform.	1%	½%	⅓%	¼%	1-5%	1-10%	1-15%	1-20%
Bac. pyocyan....	No colonies.	No colonies.	No colonies.	No colonies.	Colonies very sparse.	Few colonies.	Very many colonies.	Thick covering, no coloring.
Staphyl. citr.....	No colonies.	No colonies.	No colonies.	No colonies.	No colonies.	Few weakly colonies.	Abundant pale yellow covering.	
Streptococcus....	No colonies.	No colonies.	No colonies.	No colonies.	No colonies.	Moderate covering.	Thick covering.	

These experiments were further backed up by another, of a similar nature, made by Lichwitz and Sabrazes. Bouillon cultures of pyocyaneus and staphylococcus albus, which were several days old, were thoroughly mixed with orthoform, plced in an incubator, and frequently shaken up. Transplantations made from them after three or four days proved that the germs of the former had been entirely killed.

More importance should perhaps be attached to another circumstance. In the accompanying tables it is frequently shown that under the influence of orthoform, even of the lowest per cent., bac. pyocaneus develop scarcely any color, and produce but little odor, and that the staphylococcus citrus grew only pale yellow. Furthermore, it was easily seen that transplantations from orthoform cultures were much slower to darken bouillon, apparently as if they had to recuperate; in short, bacteria which had been raised under the influence of orthoform seemed to have lost much of their vitality. This made room for the hope of eventually reducing their virulence in like manner. This question was solved by the following experiment. Three rabbits were inoculated each with $\frac{1}{2}$ c.cm. of a virulent streptococcus culture, but with this difference:

A was inoculated with a culture that had been kept for ten hours thoroughly mixed with orthoform, B with culture under influence of orthoform for five minutes, and C with pure culture. Rabbit C died of sepsis after one and one-half days; cocci were found in blood and organs. B developed a large abscess and died in three days; post-mortem showing like conditions as C. A remained well, showing at the point of injection only a slight, rapidly disappearing swelling. In these experiments, I believe I have sufficiently demonstrated the not inconsiderable anti-septic value of orthoform.

As no germs are found in orthoform when it leaves the laboratory, and all germs that might accidently find their way into it by exposure, are either entirely annihilated or lose their virulence by contact with it, the remedy may always be used without further sterilization. As orthoform cannot be classed as an antiseptic, it is sometimes necessary to combine with its use some antiseptic of known quality, as it is also necessary for pertinent reasons to sometimes combine with it some substances that will assist granulation, and others that will retard secretion. It was, therefore, desirable to know what effect orthoform would have upon these various chemicals when in continued contact with them, and if applied simultaneously there might not result some unknown chemical compound that could eventually prove dangerous to the wound. In this direction the author has made a number of experiments, which prove beyond question that among the commonly used disinfectants, formaldehyde, nitrate of silver, and permanganate of potassium solutions should not be used in conjunction with orthoform. Corrosive sublimate does not lose its efficiency by the addition of orthoform. Turpentine, tincture of iodin and solution of copper sulphate are indifferent to its action. A combination of ichthyol offers advantages, inasmuch as glycerin or collodion may be used as a vehicle. Other good combinations with orthoform are: Iodoform, thioiodoform, dermatol, zinc oxid, europhen, aristol, calomel, and salicylic acid. Bismuth subnitrate, mixed with orthoform, assumes a chocolate-brown color, and it is not advisable to use them in combination. Carbolic acid in 3 per cent. to 5 per cent solutions, is not affected; neither are lysol or creosol solutions. Lead water, borates or acetate of alumina do not decompose orthoform.

In the following numerous cases orthoform was used sometimes alone, but mostly in combination with some of the chemicals above cited: Thirty-five cases of more or less infected bruised finger tips, with or without fracture of the phalanges, broken joint or torn tendons. Treatment: Dusting with pure orthoform; bandaging with moist boric acid or acetate alumina gauze once daily for two or three days.

Twenty-two cases of severe cuts, especially upon the hands and the lower limbs. Treatment: Dusting with orthoform for three or four days, and bandaging with iodoform gauze, or where infection was apparent or suspected with acetate alumina gauze.

Twenty cases of infected incised wounds, mostly with lymphangitis. Treatment: Three or four days' daily application of orthoform powder, covered with moist bandages of lead water or solution of corrosive sublimate. Clinical observations did not reveal any weakening of the corrosive subliminate action in the presence of orthoform.

Twenty-eight cases of abrassions of the skin, particularly on the vola manus and on the tibia. Treated with 5 per cent. to 10 per cent. orthoform-dermatol salve where no infection existed.

Thirty-one cases of burns, of the second degree, with benzine, alcohol, etc., including scalds from steam and burning with acids—mostly of the hands, face and forearms. These cases, which came under treatment immediately after the accident, with possibly no infection, were treated after opening of the blisters with a 10 per cent. orthoform-dermatol starch powder, and later with a 10 per cent. orthoform-dermatol vaseline salve, if the secretions remained within moderate bounds. Signs of infection were followed up with applications of lead water, and the surface of the wounds dusted over with orthoform.

Eight cases of running ulcers, mostly on the lower limbs, some reaching to the bone. Daily application of orthoform for eight to twelve days, in combination with moist corrosive sublimate or iodoform gauze or mercurial ointment. Dirty-looking surfaces of ulcers were often successfully cleaned by the application of three parts of calomel and one part orthoform, and bandaging with sodium chlorid solution.

Five cases of tubercular ulcers, two on the neck and three in the mouth, required many weeks of treatment with equal parts of orthoform and iodoform.

Five cases of traumatic ulcers on the foot, mostly accompanied by lymphangitis; treated by dusting with orthoform and bandages of acetate of alumina.

Three cases of decubitus—ulcers on the back, of the size of a hand. One very greasy, coated and fetid ulcer; the odor was destroyed by the use of orthoform alone. In this, as in other cases, the ulcers were cleansed by powdering with orthoform; application of lead water bandages without gutta-percha; finally, orthoform-dermatol powder or salve. All healed.

Four cases of trophic ulcers on the volar side of the great toe—tabic, 2; diabetic, 1; arteriosclerotic, 1. Application of orthoform and iodoform or orthoform gluton, or orthoform-ichthyol salve. Where much swelling surrounded the ulcers orthoform and salicylic acid—equal parts—were used. Two healed; others improved.

Fifteen cases of varicose ulcers on the lower limbs, mostly highly painful, so-called erethic ulcers of various sizes; some with symptoms of moderate infection, secreting freely; some with atonic, swollen edges and serous secretion, and poorly granulating ground. The troublesome erethic ulcers were soon relieved by powdering with a mixture of orthoform-dermatol and talcum powder or salve, over which a dry gauze was placed, held by a centripetal elastic bandage. When much pain prevailed, with obstinate healing, strict confinement to the bed was ordered. During the day oft-repeated applications of Burow's solution, and for the night orthoform powder and bandaging with lead water. Foot ulcers, which were much inflamed, were treated twice daily with moist applications of acetate of alumina, and once daily powdered with orthoform, and later sewed up with 5 per cent. gauze compress of orthoform clay. This was of great advantage where there was much secretion.

In atonic ulcers orthoform was only used to allay the pain attending the necessary application of a cautery. Applications of three parts of calomel and one part of orthoform, over which wet compresses of chlorid of sodium were placed, were borne without pain. A cautery of a 2 to 5 per cent. solution of chlorid of zinc, or tincture of iodin, may also be applied without pain if orthoform anesthesia has been resorted to twenty minutes before applying the cautery. To prevent crusting, and also to facilitate the removal of remnants of powder, it is advisable to cover the ulcer with a coarse gauze before applying the orthoform powder. In this manner all surplus powder may be easily removed. Finally, in cases where moist applications are indicated for a number of days, the parts surrounding the ulcer are covered with a thick paste of oxide of zinc. Of the fifteen cases cited, ten healed with healthy scars, without operative process; four were still under treatment, with prospective early recovery, and one case, apparently incurable, on account of general decrepitude. Among the patients are some who have used the orthoform treatment for six weeks.

In two cases of chancroid, orthoform was applied twenty minutes before applying a cautery of sulphate of copper, with the effect of reducing the enormous painfulness to a minimum.

Of five carcinomatous ulcers, one on the tongue, showed the most pronounced orthoform reaction. The anesthetized patient was able to eat comfortably once more, and to have quieted the rebellious trigemini for three to five hours. The same happy results were obtained in the treatment of an ulcerating carcinoma of the penis. Here also the fetid odor rapidly disappeared upon dusting with orthoform. One patient with rectal and anal carcinoma experienced much relief form 10 per cent. orthoform suppositories. Another suffering with tonsillar carcinoma was relieved only as fas as deglutition was concerned—the pains ardiating to the ear continued on. No disturbance of the digestive functions followed the orthoform unavoidably swallowed. In three cases of anal fissure the introduction of cocoa butter suppositories, containing 10 per cent. orthoform allayed the troublesome burning that followed stool. Powdering with orthoform permitted painless cauterization with argent. nitr., which followed twenty minutes later.

In five cases of ingrown nails pain ceased and the granulations disappeared in a few days upon the application of equal parts of orthoform and salicylic acid.

In four painful fistulæ—one anal, one urethral and two tubercular—the latter on the neck, cocoa butter points or pencils containing 5 per cent. orthoform were used with excellent results.

Three ulcers following frost-bite were rapidly healed with an ichthyol-orthoform salve of the following formula: Ichthyol, 3.0; orthoform, 2.0, and vaseline, 30.0.

In the cases so far cited, 198, the object of the application of orthoform, anesthesia, was fully realized, and anesthesia usually set in within three to five minutes, rarely later than eight minutes, accompanied only by a slight burning sensation, provided, however, that lesion of the skin would allow the remedy to come into direct contact with the nerve terminals. Anesthesia can be kept up for a long time by the deposit of a larger quantity of orthoform, as small quantities come into action from time to time, until all is used up. Where orthoform is less adherent, as, for instance, in tonsillar carcinoma, and, therefore, the deposit of a quantity impossible, also on account of localization, or in cases where abundant secretion washes the powder away, the intensity and duration of the anesthesia is necessarily lessened. This can be compensated for by oft-repeated applications. The average duration of the anesthesia was ten hours; at one time it lasted two days. Anesthesia lasting seven days was observed by Hecker after insufflation of orthoform in a case of laryngeal ulcer. The intensity of the anesthesia may attain such a degree that curetting may be undertaken upon granulated surfaces preparatory to skin grafting. The manner of application for this purpose is as follows: Two or three hours before curetting is intended, the granulations are freely powdered, with orthoform, over which a gauze saturated in boric acid and alcohol is placed, and over this a Billroth battist. The good services rendered by orthoform in the hands of the surgeon in accidental surgery gave rise to the ida of using orthoform to allay the after-pains following operations. In this direction others have also made use of orthoform, and found it very serviceable. Blondel recommends tamponing with orthoform after curetting of the uterus. Gompers has used it after operating on the nose and ear. Dreyfus used orthoform after operating for phimosis. If it should be found that orthoform will give the patient the much-needed rest, after an operation, its use would be much to be preferred to morphin injections, as orthoform does not seem to affect the general condition.

The following cases demonstrate that by the application of orthoform after-pains are entirely prevented or reduced to a minimum in many instances, so that it is seldom necessary to resort to morphin injection.

In eight cases of transplantation of skin, an application of a 10 per cent. orthoform salve prevented the burning pain usually following the excision of the skin. After tamponing with orthoform in incisions of five abscesses in various regions, and two ulcerating bursities of the olecranon, the general condition remained unchanged.

Sixteen panaries, five paronychial and six phlegmonic, give no further trouble after incision and tamponing with orthoform gauze.

Six furuncles and two carbuncles were rendered painless by insufflation of orthoform and bandaging with acetate of alumina.

In five cases of curetting of cheesy, tuberculous glands of the neck, and actinomycoses of the skin of the throat, the patients obtained relief from orthoform, and fell into a sound sleep. The same may be said of three cases of curetting of inguinal buboes.

In nine cases of curetting of tubercular bone craters, and the use of orthoform and iodoform tampons, the after-pains that follow were only very slight.

In seven thermocauteries—for angioma, 1; lupus, 2; nevus, 2; anal-fistula, 2; orthoform-dermatol salve or gauze rendered very good service.

In six cases of dental narcosis, insufflation of orthoform prevented not only the appearance of all after-pains, but also all fetid odor.

In operating on three ingrown nails and removal of the nail, good results were obtained with orthoform gauze. These last three operations formed the initiative to the use of orthoform after aseptic operations.

While the need for a remedy to allay after-pains was not so great in these cases as in the preceding cases, still operations on the periosteum and tendons, which are generally followed by intense after-pains for one or two days, left room for a desirable and safe anesthetic. As possible disadvantages that might result from the use of orthoform, besides the one already disposed of—infection of the wound—the only other one to be feared, was a possible hindrance of primary contact. That this was not the case was satisfactorily demonstrated by various experiments upon animals. The thigh muscles of a rabbit were crushed by means of a clamp, orthoform freely applied, and then sewn up. Perfect healing resulted in a few days without extra secretion. In another experiment the sinews were cut through, sewn together and freely powdered with orthoform. These were thoroughly grown together in sixteen days. The radius in two other animals were sawed through, treated with orthoform, and were found to knit in three weeks.

As subjects for clinical experiment, the numerous cases of atheroma of the face and back were preferably selected. As these atheroma often occurred in a multiple form, and patients often had a number of them removed at one sitting, this gave a chance for comparative treatment. A variation in the time of healing of the excisions treated with or without orthoform could not be noted, but one, not very serious, symptom appeared. Wounds already dry would sometimes develop, for a short time, parenchymatous bleeding when the orthoform had begun to act. The wound then shows at first a gray, and afterward a blackish-brown, discoloration. The supposition that this meant a change of the coloring matter of the blood into methemoglobin was not verified, as a spectroscopic examination of defibrinated blood, mixed with orthoform, after some time, plainly shows the line of reduced hemoglobin, or, shaken up with air, the two characteristic lines of oxyhemoglobin. The brown color of the blood is, therefore, evidently the result of the discoloration of the orthoform, which has been noticed in powder crusts, on wounds, after two or three days.

The process of healing in twenty-five atherome, two lipome and four operations on glands further demonstrated that the presence of orthoform prevented infection of the wounds. In the following minor operations there was no more suppuration from the use of orthoform Four extirpations of buboes, four excisions of lupus and carcinoma, nine finger amputations, five incisions in fingers to remove foreign substances, two operations for phimosis, and five sutures of sinews. The wounds were dusted with orthoform, and, in consequence, the dreaded first night after the operation was made much fore bearable to the patient, so that here also the use of the remedy was justified. The hope that hereafter the use of morphine injections, even after the largest surgical operations, could be entirely dispensed with will hardly be realized, as the necessary doses of orthoform for this purpose would be too large. Although our experience so far has taught us that orthoform is non-poisonous, it is only so on account of its slight solubility.

Dogs sustain 3 to 6 gms. of the substance internally; 3 gms. in the skin. Rabbits who had 1 to 1½ gm. distributed in a pocket of the skin showed no tonic symptoms. A patient of Klausssner received weekly 60 gms., applied to a carcinoma, without disturbance. Neumeyer says he saw no special symptoms following the medication of 3 to 4 gms. per day. In these cases, however, no very large absorbent surfaces came into play, as in the amputation of an arm or leg, when innumerable exposed veins and lymphatics would absorb large quantities within a short time, even of corpuscular elements. That it is advisable, however, to exercise some care in the use of orthoform was demonstrated by experiments made by Soulier and Guinard. They report fatal results from a quantity approximating 0.5 grm. to each kilo of the weight of a dog, when introduced into the peritoneal cavity. Injected into the veins of a rabbit, 0.012 grm. per kilo of the weight of the rabbit was sufficient to cause death. These are quite considerable quantities, and from these doses we may deduct that a man could stand several grams of orthoform very well, introduced into a wound. Some of the cases of burns cited above had 2 gms. dusted upon the very absorbent wounds. In the following cases, in which the wounds, some of them quite extensive, were treated with 1 grm. orthoform, no symptoms of intoxication could be discovered, in spite of the ready absorption of the remedy. After two hours the violent orthoform reaction could be determined in the urine, with chlorid of iron test.

In three cases of necrotomy of the tibia for osteomylitis, the bone plate was thoroughly smeared over with orthoform, and the periosteum and the edges of the skin dusted with orthoform. One was tamponed with iodoform gauze, and two rapidly healed with formation of the Schede ,blood scab. The usual severe after-pains were reduced to a minimum. Also three radical operations for hernia on two patients. In the double operations only the wound of the right side was treated with orthoform-boric acid powder in the proportion of 4 to 1. Healing resulted by first intention in 10 days. Secretion of both sides was of a moderate quantity. In the first few days after the operation patient experienced no inconvenience from the right, but a burning and sharp pain in the left side.

One man with incision in the bladder complained only of inconvenience from the drainage catheter.

In three amputations of the leg below the knee—one for arteriosclerotic gangrene, and two for gangrene following frozen limbs—the orthoform-boric acid powder above mentioned was applied particularly to the severed nerves, to the periosteum and upon the fascia and segments of the skin. The usually sharp burning pains were considerably modified.

In one case of tracheotomy nothing of moment occurred.

As to the usefulness of orthoform and the advisability of its application in capital (major) operations, it is rather too soon to give a conclusive operation, on account of the few cases of major operations treated with orthoform. The cases so far treated would certainly encourage and justify its further use.

Czerny and Trunececk frequently mention the use of orthoform to modify the otherwise very painful injection of arsenic. Pouchet recommends calomel-orthoform injections.

By the great number of iodoform-glycerin injections given in the clinic, it was demonstrated in many cases that the addition of 5 per cent. of orthoform proved very useful and, at the same time, harmless. The eminent good services rendered by orthoform injection in painful affections of the bladder deserve special mention.

Three cases of stone in the bladder—one with slight, and two with pronounced cystitis and frequent bloody discharge—were treated daily at night with 1 grm. orthoform suspended in a small quantity of physiological sodium chlorid solution, and injected after washing out with boric acid. The frequency of the micturitions was thereby reduced from 16 to 3 at night, and the accompanying tenesmus reduced in violence. The irritation of the muscles of the bladder, which at first reduced the capacity of the bladder to 50 c.cm., was so much allayed that in a few days the capacity was increased to 100 to 200 c.cm. The patient was also enabled to move about more freely without fear of spasms of pain produced by the moving calculi. One case of tubercular cystitis proved equally satisfactory, while two cases of gonorrheic cystitis did not seem to react to the orthoform treatment. Complete success was obtained in the treatment of two cases of prostatitis with purulent cystitis. Besides the very remarkable subjective improvement, the rapid improvement in the condition of the urine was surprising. The urine soon lost its fetid odor—by virtue of the quality of orthoform already mentioned to stop the ammonia fermentation. These cases reacted much quicker with orthoform than under the usual treatment with boric and salicylic acid irrigation and internal medication with urotropin. The same may be said of a case of severe cystitis complicated with traumatic stricture of the urethra and uric fistula of the perineum. In this, as in another similar case, a drainage catheter was introduced after excision of the stricture had been performed, and the catheter kept there for some time. As a lubricator for this catheter, a 10 per cent. orthoform vaseline was used. Another very thin elastic catheter was also frequently introduced beside the durable catheter, and an injection of orthoform oil—orthoform, 1.0; olive oil, 20.0—made into the neck of the bladder and pars prostatica. To this manipulation is ascribed the fact that in one case the durable catheter was comfortably borne for three weeks. One patient with carcinoma of the bladder showed marked improvement of the subjective symptoms and of the condition of the urine. The same patient received orthoform treatment for several weeks without apparent disadvantage.

The injections generally being given at night—1 to 1½ gms. to 2 gms. orthoform—had a most beneficial influence upon the painful tenesmus, the tension of the bladder, number of micturitions, and condition of the urine, in all cases, except the two of gonorrheic cystits, above cited. The failure in these cases of a reaction upon the subjective symptoms was due, as in most cases of affections of the skin and mucous membrane, to the probable absence of ulcerative process. In two cases, one of tubercular, the other of prostatic, purulent cystitis, the cytoscope revealed ulcers with raised edges. It is therefore rational to assume, from the marked influence upon the subjective symptoms, also in the other cases (especially where calculi were present), the presence of suppurative process, and to claim for orthoform the same diagnostic value in affections of the bladder as it is already credited with in affections of the mucous membranes of the throat and stomach.

With these very favorable experiences on record the failures recorded by Nogues were so much more surprising. In three cases of stone, five tuberculous and four other cystites, he experienced in most instances an increase of the troubles and no cessation of the pain from orthoform therapy. The reason for these failures is to be found in the fact that Nogues used glycerin as the vehicle for the introduction of the orthoform, on account of the solubility of orthoform in glycerin in the proportion of 5 in 100 parts, and instilled this solution two or three times daily; how much, however, is not stated. Now, it is a well-known fact that glycerin applied to excoriations produces violent burning, and that the muscles of the bladder react by contraction from the use of glycerin. For these reasons glycerin is not a fit vehicle for the introduction of orthoform into the bladder, as the glycerin would exert these two very harmful properties before the orthoform would get a chance to act. The orthoform, besides, would be precipitated as soon as it came in contact with the aqueous urine. A solution of orthoform in glucerin is, therefore, of no practical value. Besides, it is impossible to introduce enough orthoform into the bladder by installation; in using a 5 per cent, glycerin solution it would be necessary to use 20.0, which would be impracticable. A physiological sodium chlorid solution (1, 30.0 or 50.0), that neither irritates the muscles of the bladder nor the ulcers, is, therefore, preferred as a means of irrigation. This solution can be eminently recommended for use in allaying pain of sufferers from bladder troubles whose general condition is usually very much disturbed.

The possibility of the formation of stone might be advanced, as a theory, by the presence of the almost insoluble orthoform in the bladder. This does not seem probable, however, as no such symptoms have been known in many cases treated. Also, as acid as well as alkaline urine will dissolve small quantities of the orthoform, the greater part would be soon removed by frequent micturitions and irrigation of the bladder, besides new solvent fluids being constantly thrown off from the kidneys, the possibilities of stone are very remote. There are, furthermore, few cases in which a lasting use of orthoform is indicated, except in the case of malignant growths, etc. Mirabeau had good results from orthoform suspended in boric acid solution in anesthetizing the bladder and reducing the tension, so that it was possible to use the cystoscope upon very sensitive bladders without pain. The good results obtained in the large number of cases (330) treated within two years with orthoform, teach us that the prime object of its use—anesthesia of wounds—was realized in all but a very few exceptional cases. Further, the circumstance that in the many cases of continued use of orthoform, some for weeks and months at a time, no serious after-affects occurred, is the surest evidence of the harmlessness of orthoform when correctly used.

Only a few local disturbances could be traced to its use. These were mostly vesicular or pustular eczemas, that appeared with moderate itching in the neighborhood of the wound. Of these only five in 330 cases occurred. Orthoform gangrene is still rarer. The prime condition essential to the appearance of orthoform eczema seems to be individual intolerance (idiosyncrasy). Too copious use of the powder and localization of the affection treated are also considered factors in developing eczema. The appearance of orthoform necrosis would necessitate as prime factors, besides individual idiosyncrasy, particularly malnutrition of the tissues under the unfavorable influence of an infection or hyperemia. Keeping these conditions in mind, it is easy to avoid the occurrence of these after-affects. Then orthoform should only be used under the direct supervision of a physician; self-application by the patient should not be permitted, as the patient is liable to be deceived as to his condition. The physician can prevent the eczema by avoiding the use of orthoform too freely in the beginning, and by the application of a thick zinc oxide paste around the ulcer. If, in spite of this precaution, eczema should appear, a discontinuance of the orthoform and applications of a powder and bandaging for two or three days will remedy the trouble. To avoid gangrene, especially in persons afflicted with venous hyperemia of the lower limbs, the patient should be kept strictly in bed, and where infection of the ulcers is suspected, treatment with the usual antiseptic must not be neglected. The experiments of the author have further proven that orthoform does not increase the secretions or retard the process of healing.

More we need not wish for. It suffices that orthoform, used in reasonable quantities, especially under the directoin of a physician, is an absolutely harmless local anesthetic with which the surgeon is capable of banishing the pain of wounds with an astounding degree of certainty.—*Buffalo Medical Journal.*

THE TREATMENT OF DUPUYTREN'S CONTRACTION AND OTHER POINTS IN THE SURGERY OF THE HAND.*

By A. H. TUBBY, M.S. Lond., F.R.C.S. Eng.,
Surgeon to Westminster Hospital; Surgeon to the National Orthopædic Hospital;
Senior Surgeon to the Evelina Hospital for Children.

Contraction of the palmar fascia, or "Dupuytren's contraction," is an affection of insidious onset and slow but sure progress. It so deforms the hand as to seriously interfere with its integrity, and once started it progresses steadily until one or more fingers are brought down and held firmly flexed into the palm of the hand. Beginning usually in the ring finger, it spreads to the middle and the little fingers and not seldom to the index finger. Thus in a patient who came to me recently in the right hand the ring and middle fingers were affected, in the left hand all four fingers, the ring finger in both hands being the most involved. The site of the commencement of the thickening of the palmar fascia is generally at the deepest part of the palm of the hand—namely, the transverse crease near the base of the ring finger. From this spot the thickening or induration spreads upwards towards the wrist and downwards towards the fingers. As a rule, it affects the lateral prolongation of the fascia on the fingers, and, occasionally, as in a case I saw recently, the central portion of the digital prolongation is affected.

---

*A paper read before a meeting of the British Orthopædic Society on Oct. 13, 1900

The exact causes of the induration and contraction of the palmar fascia have never been decided, but there are certain points which stand out quite clearly—viz.: (1) It is more common in the male sex than in the female sex; (2) it is met with generally after 40 years of age; and (3) a large number of the patients who suffer from it have a gouty history. In this connection it might be mentioned that Mr. C. B. Lockwood found crystals of urate of soda deposited in the affected structures. The question of traumatism is somewhat difficult to speak of, for about 50 per cent. of the patients can trace the onset to a slight injury or repeated rubbing of the palms; whereas, on the other hand, many patients have never been subjected to any manual labor. Therefore, the exact cause must remain in doubt, unless we are prepared to favor the late Mr. William Anderson's theory that the affection is bacterial in origin, and that micro-organisms find their way into the fascia through a wound in the palm. Unfortunately, however, no bacteria have been demonstrated, yet as a fact of some interest we may recall the existence of bacteria or micro-organisms in warts on the hands.

For treatment it has been usual to adopt the method first practiced by the late Mr. William Adams of multiple subcutaneous division by a fine tenotome of all the contracted bands of the palm of the hand and of the fingers. This method is fairly successful, but it has certain disadvantages. These are as follows: 1. The difficulty often experienced of completely dividing all the bands. If these should extend upwards and over the site of the superficial palmar arch, complete division here cannot be effected without danger of wounding the vessels. 2. It frequently happens, therefore, that more than one operation is necessary, as the fingers cannot be fully extended unless the fascia is completely divided. 3. The after-treatment is decidedly tedious, and sometimes involves the use of expensive and complicated apparatus. 4. It has been shown that some cases which have been treated by this method recur, much to the patient's disgust and disappointment. So in suitable cases I have operated by the open method—that is to say, I have dissected out all the affected fascia in the palm. It is, however, necessary to carefully select the patient. The urine should be examined for albumin and for sugar, and the patient should be in good health, spare, and one apparently possessing good healing power. The advantages of operating by the open method are as follows: 1. All the affected fascia in the palm can be completely removed and there is no liability to recurrence. A gentleman, aged 66 years, in good health, on whom I operated five years ago by this method, has never shown the slightest sign of trouble, and the palm is as soft and flexible as it is possible for it to be. And if there be any truth in Mr. Anderson's baciliary theory, the best treatment is to get rid of the whole affected part as soon as possible. 2. By the open method treatment is shortened, for as soon as the wound in the palm is firmly healed the use of splints can be discontinued. 3. No expensive apparatus is necessary, thin, narrow malleable iron splints being all that are required. Certain disadvantages have been urged against the open method. Firstly, it involves a prolonged dissection, but in itself to a skilled operator this is not a matter of great moment; and, secondly, while removal of the indurated fascia in the palm is easy by dissection, it is not possible to dissect it out off the sides the fingers, except in strictly localized bands; and, thirdly, if for any reason the hand should go septic after the operation the results are disastrous. It is quite possible, however, that such an event might happen in operating by the older method.

The measures adopted are as follows: The hand is made absolutely aseptic by all the most approved methods, and to this point, if the surgeon decides to operate by dissection, he must attend himself, and not delegate it to a subordinate or to a nurse; for this is the essence of the whole business, and any want of care and forethought in this particular will end in disaster. The same remark applies to instruments and to the accessories. As an anesthetic I prefer chloroform or the A. C. E. mixture, avoiding ether whenever possible, because of the increased hemorrhage associated with it. An Esmarch's bandage is previously placed around the upper arm, so as to prevent the otherwise free oozing from obscuring the field of operation, and the incision is then made vertically over the most prominent band of fascia, extending from the position of the superficial palmar arch to the root of the finger. In extensive cases this incision can be enlarged by carrying out transverse cuts at either end. The dissecting back of the flap of the skin is difficult without buttonholing it. What happens is that the thickened epidermis peels away from the cutis vera, while the latter is attached very firmly by numerous fibrous prolongations to the fascia beneath. Then, too, if the fascia is nodular, it often happens that the skin is exceedingly thin, so that great care must be taken in dissecting it away, but it must be turned back as far as the limits of the affection. The next point is the removal of the fascia. Before doing so it is well to define the digital vessels and nerves as they emerge from the divisions and trace them back by cutting through the thickened fascia towards the wrist. The affected structures can now be easily removed, and often the finger, or fingers, can be straightened. In those cases where the fingers are involved, a small fine tenotome is passed between the skin and the bands on the lateral aspects, and the fibrous tissue divided. An important point is the arrest of hemorrhage. The Esmarch bandage should be released, and whatever oozing occurs should be checked by pressure or by the application of hot sponges. If any arteries spurt, it is most advisable to use torsion to check them, and not to put on ligatures, for these are apt to give rise to trouble in healing. The application of sutures should be careful, and the material to be used is horse hair. If it happen when the fingers are straightened that there be a hiatus of skin at their roots, I have several times performed a small plastic operation and slipped down a little skin to cover up this spot. Sal alembroth dressings are then used, and rigid asepsis must be continued until every scab has disappeared. In one of my patients, whom I warned on this point, considerable trouble followed from neglect. He was a sea captain, and finding that the palm was all but well, he took off the dressing and proceeded to climb up the side of the ship by a rope, knocking off a small scab. Acute edema and trouble in the palm of the hand followed, with considerable stiffness, and gave him much inconvenience for four months. Subsequently, the whole matter settled down, and the patient's hand is as good as it can possibly be. The question will arise, "Should the hand be put up at once in the straight position?" If there is much contraction of the fingers it is better not to do so, because of the pain which arises from stretching of the digital nerves, which have become structurally shortened while the finger contracted downwards.

On the whole, then, in suitable cases, removal by the open method, with the aid of aseptic surgery, is a quick and thorough method of dealing with this deformity.

CLUB-HAND

This is a comparatively infrequent deformity, and is almost always congenial. During the last ten years I do not think that I have seen more than fifteen cases, and they were mostly unilateral. In some of them the child was born prematurely, and there were defects elsewhere. For so unusual a deformity the classification adopted is somewhat intricate, but it is analogous to that of club-foot. The hand may deviate either externally or internally, and be either flexed or extended. Hence there are radial and ulnar club-hand, and palmar and dorsal club-hand. But it is not often that the deformity is simple, and mixed deviations occur; so that radio-palmar, radio-dorsal, ulnar-palmar, and ulnar-dorsal forms are seen. Morphologically, the cases may be grouped thus: 1. The skeleton is complete and otherwise well formed, and the malformation consists in a modification of the relations of the articular surfaces and in an abnormal inclination of the line of the joint. 2. The skeleton is complete, but deformed in parts; the radius is often shortened, and the carpal bones atrophied. This is the most usual variety. 3. The skeleton is incomplete and deformed. The radio-palmar varieties are generally of this group. There is an absence of one or more bones of the metacarpus, or of one of the bones of the forearm. When the radius is absent the ulna is shortened, increased in size, and much curved. The carpal articulation is abnormal, and there exist in it numerous fibrous bands and tendons which are in no way related to normal structures. Frequently other irregularities are present in the body, such as absence of groups of muscles or vascular and nerve defects.

Unfortunately, the deformity does not admit of very successful treatment. Passive movements and massage are of service when the patient is young, and they are valuable in preventing aggravation of the deformity by contraction of the tendons on the concave aspect of the wrist. Various apparatuses have been devised with the object of rendering the hand useful, but they are not very satisfactory, and the patient can use the hand in many cases to better purpose unfettered by any contrivance. Tenotomy is also of service, and those tendons should be divided which interfere with the placing of the hand in a right line with the forearm, and care be taken that important vessels and nerves are not wounded. Dr. L. McCurdy planned and carried out the following ingenious operation in a radio-palmar deformity with hypertrophy of the lower end of the ulna: He made an incision obliquely across the forearm, beginning upon the dorsum and passing obliquely upwards to the flexor aspect. The tendons on the radial side were tenotomised, the lower end of the ulna was divided obliquely, and to the outer part the semilunar bone was connected with silkworm-gut. In many of the cases which I have seen I have been content to divide the contracted tendons and to gradually improve the position of the hand by massage, passive movements, and a retentive malleable iron splint.

ON THE PROGNOSIS OF TENDON DIVISION AND SUTURE IN THE HAND.

Cases are frequently occurring in surgical practice where division of the tendons has taken place in the hand, and failure of complete union followed even after the most careful suture. This is not a mere matter of chance, but it is dependent on certain well-ascertained facts. Some of these are the following: (1) The index tension at which the muscle and tendon are set—*i. e.*, their powers of retraction; (2) the limitation of retraction of the tendon by bands of fibrous tissue binding it in its grooves; and (3) the character of the structures at the spot where division of the tendon occurs—*e. g.*, if division is made where the tendon is surrounded by vascular areolar tissue, plentiful formation of fibrous tissue takes place and the tendon unites, despite considerable retraction of the divided ends. It therefore becomes necessary to remember the foregoing three points in forming a prognosis as to the results of tendon division.

Bearing those points in mind, the seat of election of purposeful division of a tendon for contraction can be determined. It may be of service to give examples. If the extensor tendons of the fingers are severed, better results can be expected than in the case of the flexors, owing to the closer attachment of the former to the sheaths, the integument, and to one another. But the retraction is greater when division occurs above the wrist than below it. The extensors of the thumb frequently suffer in wounds of the hand. If they are divided at the back of the wrist they retract only about one centimetre, as they are more or less bound down by periosteum, and good union occurs, but if the division takes place over the metacarpal bone the central end will retract three or four times as much, as the tendons play freely in the sheath, and the latter is very loosely attached to surrounding structures, so that good union is rare. When the wound is at the metacarpal phalangeal articulation of the thumb, the prognosis as to healing is good, for the tendons are bound down to the capsule of the joint and cannot retract, even though the joint has been opened.

The flexor tendons, if divided at the wrist-joint, retract very considerably, but the superficial ones less so than the deep, for the former lie in tubes of fasciæ; yet better union occurs here than in the palm of the hand, because the neighboring structures are more vascular, and a good uniting bond of tissue is thrown out. A most important point is to keep the wrist fully flexed for at least four weeks after the accident, and then gradually bring the hand into the straight position, taking at least a month to do so. In any operation on the flexor tendons of the hand and fingers the wrist is the seat of election, as it is more likely that new tendon formation will follow, and the exact length of this can be graduated by carefully controlling the position of the hand on the forearm. A recognition of these points is of importance in the treatment of contracted hand for spastic paralysis—*The Lancet.*

THE MUTUAL INFLUENCES OF PREGNANCY AND THE INFECTIOUS AND CONSTITUTIONAL DISEASES.

By ROBERT B. PREBLE, M.D., Chicago.

There is little new to be said of the mutual influences of constitutional and infectious diseases and pregnancy. It has always been customary to consider the subject from three standpoints—the influence of the pregnancy upon the disease, the influence of the disease upon the pregnancy, and the influence of the disease upon the fetus. The last aspect is the only one about which we have new information, for it is only recently that any attention has been given this aspect of the question. The study is surrounded by the greatest difficulties, and nothing except a few interesting facts have yet been learned.

Ferè has been for some time making a series of very interesting studies upon the influence of varied agents upon the chick embryo. He has exposed the egg in the incubator to alcohol, ether, tobacco, and various other toxic bodies, including a variety of the bacterial toxins. In this way various monstrosities have resulted similar to those obtained by shaking the incubating eggs. It seems likely that these injurious agents and the various infections and intoxications, when they act upon the embryo before the differentiation of the various organs, lead to malformations, and where they act after the organs are defined their effects are similar to those experienced in post-fetal life. For example, a malformation of the heart would result from injurious influences early in the fetal life, and the fetal endocarditis would, from similar influences, be felt later in the uterine life.

Another interesting suggestion is that made by certain authors to explain the linea nævi and the multiple fibromata of the nerves. They have been referred to as intrauterine multiple neuritis. The suggestion is not supported by any definite evidence.

So far as infectious diseases are concerned, it may be stated that no one of them is much altered by a coincident pregnancy. The only possible exceptions to this statement are those diseases which rapidly produce anemia, such as acute articular rheumatism and malaria. The addition of such anemia to that of pregnancy is markedly injurious. Another possible exception is that of acute yellow atrophy. This disease, undoubtedly an infectious one, is considerably more frequent in pregnancy and the puerperium than under other circumstances. Pregnancy has also considerable influence upon certain of the primary anemias. Chlorotic women are usually sterile, but if they conceive the anemia is intensified by the pregnancy. Women who, as young girls, have been chlorotic, often suffer a relapse during pregnancy.

Pernicious anemia is made worse by a pregnancy, and in a considerable number of cases seems actually excited by it. Leukemia is not materially influenced by pregnancy. I have in mind one case in particular where there were several normal pregnancies after the development of the leukemia. Schroeder collected ten cases of leukemia with pregnancy, neither influencing the other except for an increased discomfort. Disease was not transferred to the fetus.

The influence of this disease upon pregnancy is very much more marked. All of the primary anemias are looked upon as active causes of abortions and miscarriages, just as they are frequent causes of sterility. Certain cases of habitual abortion are cases of incompletely developed chlorosis.

Obesity, while frequently the cause of sterility, has no particular effect once conception has occurred. Diabetes mellitus has a marked influence upon sterility. LeCotché found but seven conceptions in 114 women. If pregnancy occurs, the miscarriage is more common than abortion. The fetus usually is stillborn, but if born alive it is apt to die shortly. Duncan reports one case in which the new-born child of a diabetic mother had diabetes.

All of the acute and chronic infectious diseases have an injurious influence upon pregnancy, the fetus causing an abortion in a very considerable proportion of the cases. With the exception of the variola, these diseases are usually no worse when combined with the pregnancy than under ordinary circumstances, but the summation of the disease and a resultant abortion are a bad thing. The old statement that pregnancy confers an immunity from infections is erroneous.

Variola, which occurs somewhat more frequently during the second half of pregnancy, is often the severer forms. Abortion occurs in about 50 per cent. of the cases; the severer the variola the more certain the abortion. The milder cases, especially when they occur in the earlier months of pregnancy, do not, as a rule, abort.

Pregnant women bear vaccination well, but the vaccination does not protect the fetus. Whether the fetus of a woman with variola may have the disease without an interruption of the intrauterine life and be born at term is still questionable. There are numerous cases in which the child is born with the eruption, or is born apparently well and the eruption appears soon after. Sedgwick states that a fetus may have an intrauterine variola or be born with the eruption without the mother having the disease. What is more probable is that the mother has had a variola without eruption.

Several authors have reported cases of twin pregnancy in which one of the twin feti had the disease and not the other.

Goldsmith gives the following statistics for variola:

	Per cent.
Death without abortion	2.74
Death after abortion	27.67
Recovery without abortion	50.27
Recovery after abortion	19.32

Scarlatina, because of its rarity in adults, is an uncommon complication of pregnancy; Olshausen could find but seven cases. If severe, it excites abortion, and the fetus may or may not show the eruption.

Measles is somewhat more common than scarlet fever; Underhill collected fifteen cases. In five out of seven occurring early in pregnancy abortion occurred. All of the seven cases in the last month of pregnancy miscarried early in the disease. The fetus is usually born alive, and Thomas was able to collect six cases in which the child was born with an eruption, or soon developed an eruption.

Typhoid fever during pregnancy has been the subject of considerable study of late years, and is one of the best of the infectious diseases for study. It is stated that pregnant women show a certain degree of immunity toward typhoid, and that this immunity increases in the second half of pregnancy, but I have found no evidence as to the correctness of this statement.

When the disease occurs it causes abortion in considerably more than one-half of the cases. Fordyce states 199 abortions in 310 cases, and 66 abortions in 109 cases. The maternal mortality from typhoid is somewhat higher than the average mortality, being 17 per cent. of 183 cases. The fetus is usually born dead.

The fetus, with a few and questionable exceptions, does not show the lesions of typhoid. There is, however, an increasing number of cases in which the typhoid bacillus has been regained from the organs of the fetus.

The fetal blood may or may not show the Widal reaction. Fordyce and Mossé et Dannic report cases in which the fetal blood shows the reaction; Mossé et Dannic found the reaction in child's blood 33 days after birth. The bacteriological examination of the placenta was negative. Charrier and Apest found no Widal reaction in the blood of a fetus dying in the third week of the maternal typhoid.

Malaria often causes abortion, particularly in the second half of pregnancy; according to Goth, 41 per cent.; Weatherley, 46 per cent. The combination of the anemia of pregnancy with the hematolysis of the malaria is particularly bad. While the transference of the plasmodium to the fetus has not yet been proven, it is probable, for the fetus may come into the world with an enlarged spleen and show fever paroxysms just after birth. The fever of the mother and child may occur on the same or alternate days. The fetus is frequently born dead with an enlarged and pigmented spleen.

Pneumonia.—The more advanced the pregnancy the more inevitable its interruption, and it is only when the miscarriage occurs, during the ninth and tenth months, that the fetus has a good chance. Cases treated expectantly give a mortality of 14.3 per cent.; those in whom abortion is induced give a mortality of 71.9 per cent.

Influenza during epidemic is often the cause of abortion; the more severe the influenza the more inevitable the abortion.

Tuberculosis.—It was formerly stated that tuberculosis became quiescent during pregnancy. The opposite is true, and the more advanced the tuberculosis the more injurious the pregnancy. With advanced tuberculosis abortions are common, and if the child is born alive it is a weakling.

According to Grisolle, 38 per cent. of children of phthisical women die, and about one-fourth of these are stillborn. Actual transference of the tuberculosis, *i. e.*, an intrauterine tuberculosis, while not unknown, is decidedly rare.—*Obstetrics.*

THE VALUE OF THE X-RAYS.

Professor J. William White presented the following views, which were unanimously adopted by the American Surgical Association, as to the medicolegal relations of the x-rays (*American Journal of Surgery and Gynecology,* September, 1900):

1. The routine employment of the x-ray in cases of fracture is not at present of sufficient definite advantage to justify the teaching that it should be used in every case. If the surgeon is in doubt as to his diagnosis, he should make use of this as of every other available means to add to his knowledge of the case, but even then he should not forget the grave possibilities of misinterpretation. There is evidence that in competent hands plates may be made that will fail to reveal the presence of existing fractures, or will appear to show a fracture that does not exist.

2. In the regions of the base of the skull, the spine, the pelvis, and the hips, the x-ray results have not as yet been thoroughly satisfactory, although the skiagraphs have been made of lesions in the last three localities. On account of the rarity of such skiagraphs of these parts, special caution should be observed, when they are affected, in basing upon x-ray testimony any important diagnosis or line of treatment.

3. As to questions of deformity, skiagraphs alone, without expert surgical interpretation, are generally useless, and, frequently, misleading. The appearance of deformity may be produced in any normal bone, and existing deformity may be grossly exaggerated.

4. It is not possible to distinguish after recent fractures between cases in which perfectly satisfactory callus has formed and cases which will go on to non-union. Neither can fibrous union be distinguished from union by callus in which the lime salts have not yet been deposited. There is abundant evidence to show that the use of the x-ray in these cases should be regarded as merely the adjacent to other surgical methods, and that its testimony is especially fallible.

5. The evidence as to x-ray burns seems to show that in the majority of cases they are easily and certainly preventable. The essential cause is still a matter of dispute. It seems not unlikely, when the strange susceptibilities due to idiosyncrasy are remembered, that in a small number of cases it may make a given individual especially liable to this form of injury.

6. In the recognition of foreign bodies the skiagraph is of the very greatest value; in their localization it has occasionally failed. The mistakes recorded in the former case should have been easily avoided; in the latter they are becoming less and less frequent, and by the employment of accurate mathematical methods can probably in time be eliminated. In the meanwhile, however, the surgeon who bases an important operation on the localization of a foreign body buried in the tissues should remember the possibility of error that still exists.

7. It has not seemed worth while to attempt a review of the situation from the strictly legal standpoint. It would vary in different States and with different Judges to interpret the law. The evidence shows, however, that in many cases and under many differing circumstances the skiagraph will undoubtedly be a factor in medicolegal cases.

8. The technicalities of its production, the manipulation of the apparatus, etc., are already in the hands of the specialists, and with that subject also it has not seemed worth while to deal. But it is earnestly recommended that the surgeon should so familiarize himself with the appearance of the skiagraphs, with their distortions, with the relative values of their shadows and outlines, as to be himself the judge of their teachings, and not depend upon the interpretation of others, who may lack the wide experience with surgical injury and disease necessary for the correct reading of these pictures.—*Therapeutic Gazette.*

THE TREATMENT OF ACUTE COLDS.

By W. BLAIR STEWART, A.M., M.D., Atlantic City, N. J.
Lately, Assistant Professor of Pharmacology and the Physiological Action of Drugs
in the Medico-Chirurgical College of Philadelphia, Member of the American
Academy of Medicine and American Medical Association, President
of the Atlantic City Academy of Medicine, Surgeon to the
Atlantic City Hospital.

Many acute colds have their onset by a slight localized burning, stinging, or itching sensation in the throat. If it is possible to treat at this stage, paint the spot with pure glyceritum acidi tannici, or a solution (gr. x to ℥j) of argenti nitras. Follow this by two grains of bisulphate of quinine, two grains of acetanilid, and a cup of hot tea, milk, or water, and the case is usually aborted. Many cases are aborted by the painting alone. If this burning sensation is allowed to continue for six or twelve hours, more decided measures are necessary, as the throat becomes sore, or there is a marked coryza developed, or general pains and constitutional symptoms. Any therapeutic agent that will tend to equalize the circulation or render the emunctories active will materially assist; hence the virtue of a dose of castor oil, calomel, blue mass, or other purgatives. It is well to have free catharsis at the beginning of active treatment.

Nervous type.—General aching, headache, fever, chilly sensations and flashes of heat, some sore throat, and cough. It is my custom to give a tablet containing:—

℞	Quininæ bisulphatis	gr. j
	Acetanilid	gr. j
	Cocainæ hydrochloratis	gr. $\frac{1}{16}$

Signa: One tablet or capsule every hour for four consecutive hours; then every two hours. Give $\frac{1}{2}$ cup of very hot water or milk after each dose.

Put your patient in bed for best results. Most cases of this type respond promptly to this method; but, if the congestive headache still continues, give a hot mustard foot bath and put a mustard plaster to the back of the neck. If the cough is dry and irritating, give codeine, gr. 1/16; or heroin, gr. 1/20, with the tablet, but not combined with it, for neither narcotic is needed when the cough is controlled.

Catarrhal Type—Running nose, suffused eyes, some cough, and sore throat.

℞ Quininæ bisulphatis	gr. j
Camphoræ	gr. $\frac{3}{4}$
Ext. belladonnæ	gr. $\frac{1}{12}$

Misce tablet vel capsul. No. j.

Signa: One every hour, for four or five hours; then one every two hours.

Follow the same general rules as in the nervous type. Good results can also be obtained from the T. G. Davis fever tablet (Tr. aconiti, *m*1/5; tr. belladonna fol., *m*1/10; tr. byronie, *m*1/10), given every fifteen to thirty minutes, and allowed to dissolve in the mouth. As soon as the physiological effects of the belladonna are felt, lengthen the interval to one or two hours. In children melt six or eight of these tablets in 30 teaspoonfuls of water, and give one teaspoonful every twenty to thirty minutes, until results are obtained. Inhalations of menthol, camphor, or turpentine are beneficial. Better still, spray the nose and throat frequently with:—

℞ Menthol	gr. x
Camphoræ	gr. xv
Olei eucalypti	gtt. x
Albolene	f℥ij —M

Cosmolin used freely in the nose is also useful to relieve soreness and excessive secretion. When there is sore throat you will find the following gargle most serviceable:—

℞ Glyceriti acidi tannici	f℥j
Acidi carbolici	gtt. xv
Glycerini	f℥j
Hydrogen dioxide, q. s	f℥iv

M. Signa: Two to four teaspoonfuls to $\frac{1}{4}$ glass of water, and gargle every fifteen minutes to one-half hour.

If to this method is added an ice-bag applied to the throat in selected severe cases results are prompt.

You will frequently meet with a mixed nervous and catarrhal form of cold. Alternate each hour between the acetanilid and camphor pill before mentioned, until the nervous symptoms subside; then discontinue the former and give the camphor pill every two hours. Very few colds in the first stage will fail to give prompt response to this treatment.

My success with large doses of Dover's powder has been poor; some cases will undoubtedly respond to it. There is a class of individuals in whom abortive methods will not act even at the very onset, but many of these will be found to neglect some detail or expose themselves to further infection.

Most cases of acute colds will come to you when they have passed the stages outlined, or, maybe, you have treated with little result, and the cold has progressed to a bronchial type, with a hacking, dry, burning, or painful cough, and pain in the chest. Immediately apply mustard over the painful or affected area. Best results are obtained from a home-made mustard plaster of one part brown mustard and three parts flour, mixed with tepid water or egg-albumin. This modified plaster can be kept on for hours with no danger of blistering, except in very sensitive skins. In the latter case anoint the skin with cosmolin or lard before applying the plaster. In young children it is better to use free inunctions of camphorated oil, turpentine and lard, or coal-oil, applied hot, from two to three times daily. In fact, any good counter-irritant to the chest is good. Internally give:—

℞ Vini antimonii	f ʒ iss
Ammonii bromidi	ʒ iiss
Liq. ammonii acetatis	f ℥ iiss
Syr. limonis, q. s	f ℥ iij

M. Signa: One teaspoonful in water every two hours.

Use this combination each alternate hour, with the camphor pill or acetanilid pill, as indicated. In simple colds use the mixture alone. There is no one working formula that gives as much satisfaction as this. The antimony will reduce heart action without depression, relieve congestion, and start bronchial secretion. The bromide will relieve harassing cough and any nervous symptom, will assist in controlling the heart, and acts locally as a sedative to the throat. Liquor ammonii acetatis will render the skin and kidneys active, and soon brings on free bronchial secretion. Syrup of lemon is the best vehicle, and next to it is mistura glycyrrhizæ. This formula should be varied in strength according to the demands of the case. It is sometimes well to substitute codeine, gr. 1/16, or heroin, gr. 1/20, for the bromide, to control cough. Opiates, as a general rule, retard recovery, but should never be neglected if the cough is not easily controlled. Continue this method until all congestion disappears, when it is wise to follow with a good preparation of hypophosphites or cordial or emulsion of cod liver oil. Should your case be a depressed old person, this same combination can be given with perfect safety, but it is well to give five to ten drops of aromatic spirit of ammonia, well diluted with water or milk, every three hours, at a separate dose. Ammonium chloride, in my experience, is very much overestimated and disappointing. In most cases the cough is eventually "tightened" and aggravated. Its one main use seems to me to be to disorder the stomach and depress the appetite. Other ammonia preparations are much better when indicated.

It has not been my purpose to deal exhaustively with the treatment and prevention of acute colds, but to outline a good working basis as gleaned from my own practical experience.

THE BACTERIOLOGY OF ACUTE ARTICULAR RHEUMATISM.

The London correspondent of the *Therapeutic Gazette* reports that one of the more notable recent contributions to medical science has been the work of Drs. Poynton and Paine on the bacteriology ot rheumatic fever. Their earlier results were published in *The Lancet* of September 22 and September 29, last year. They have now given us the result of their further investigations in a communication to the Pathological Society of London. In these papers they describe the isolation of a diplococcus from a number of patients suffering from typical rheumatic fever, and the experimental results obtained with it in rabbits. The organism had been isolated from the blood of patients suffering from acute rheumatic pericarditis, in pure culture during life; also from the pericardial fluid after death, and from the valves; and, lastly, from the throat of a rheumatic patient suffering from rheumatic angina. Since these papers they have succeeded in detecting the diplococcus in the bladder after death from rheumatic pericarditis, and in the urine during an acute attack of pericarditis. The organism did not thrive on ordinary media, but grew best in a liquid medium of milk and bouillon, rendered slightly acid with lactic acid. Anaerobic cultivation was more satisfactory than aerobic; the anaerobic cultures were made in Pasteur's pipettes, which were exhausted by an air pump and hermetically sealed; from the acid medium they were transferred to blood agar. In the pericardial exudate of a rabbit that had suffered from acute pericarditis after inoculation, they found, in addition to the typical diplococcus, large solitary cocci. These they had also seen in the human tissues, and in cultivations on unsuitable media. They suggest that this was a transformation of the typical diplococcus due either to loss of virulence or to alteration in the chemistry of the tissues. Conversely, they had found in some cases of malignant endocarditis very numerous and minute diplococci, which might represent a form of increased virulence. Clinically, the suggestion certainly has much to support it; it would go far to explain the occurrence of distinct clinical types of rheumatic fever in the degree of severity; it would explain far more satisfactorily than heretofore the relation of simple acute endocarditis to malignant endocarditis it would go far to account for the subacute types and their relation to acute attacks. The authors suggest that the rheumatic fever is a disease to which there is great local resistance. Thus they explain the fugitive character of the arthritis and pericarditis, of the chorea and other familiar lesions. They corroborate their suggestion by the observation that in several cases these diplococci may be seen taken up by connective tissue and endothelial cells in great numbers. The diplococcus cultures when injected intravenously into the rabbit produced unfailingly the characteristic clinical evidences of acute rheumatism; this was demonstrated beyond all doubt by the admirable series of microscopical preparations exhibited by the authors to the Pathological Society; in these specimens, too, the diplococcus was not infrequently demonstrable in the tissues. Among the features thus produced may be noted polyarthritis, valvulitis and pericarditis, pleurisy and pneumonia; in the heart muscle is found a condition of fatty degeneration and destruction of the muscle fibers analogous to that found in the human heart as a result of severe rheumatic myocarditis. In no case was there any suggestion that the lesions were referable to associated sepsis. In one rabbit symptoms appeared closely resembling chorea. The organisms have been readily recovered from the tissues of the rabbit, and cultivated anew. Thus it will be seen that in the experiments and observations of the authors all the conditions of Koch's postulates have been satisfied. With regard to the staining properties of the organism, it may be stained with the various aniline dyes, though by Gram's method it is easily decolorized. The authors themselves recommend carbol-thionin; when deeply stained with this dye they appear a deep blue, whereas the tissues are usually a light blue, or have a red tinge.

Cure of Chronic Leg Ulcers.—L. B. Fisher's method for the cure of leg ulcers, as quoted by the *Medical Standard*, is as follows:

1. Use aseptic methods with same care you would on an aseptic wound.
2. Spray with peroxide of hydrogen thoroughly.
3. Make ulcers perfectly dry with absorbent cotton.
4. Powder with acetanilid, one part, mixed with four of boracic acid powder.
5. Use strips of dry antiseptic gauze, an inch wide and a yard long, over each ulcer. Lay them on loosely, so as to be effective absorbents.
6. Place antiseptic cotton on top of gauze.
7. Bandage from toes to knee with firm cotton bandage.
8. Bandage with starch bandage when patient shows an inclination to tamper with the dressing.

When the ulcer is deep, cut a disc of pasteboard large enough to extend half an inch beyond the edge of the ulcer, and cut a hole about the size of the ulcer (a little smaller) in the center of the disc. Bandage this on over the ulcer. In a day or two after using this disc the ulcer will be completely filled with granulations. If the ulcer has granulated above the surface, bandage a complete disc of pasteboard over the ulcer. It is a simpler way of reducing granulations than by the use of lunar caustic.

Powdered charcoal should be used on ulcers that are gangrenous before using the acetanilid mixture.

The legs must be kept free from dead cuticle, which forms an excellent nidus for germs. The free use of alcohol and a pair of forceps will keep them clean.—*Richmond Journal of Practice.*

[It is also to be noted that there is one simple procedure which will hasten the healing of all leg ulcers, which will of itself suffice in many instances to effect a cure, and in the absence of which a certain number of these cases refuse to be comforted, and that is rest in bed.—*Ed. Gaillard's.*]

GAILLARD'S MEDICAL JOURNAL.

A MONTHLY JOURNAL OF MEDICINE AND SURGERY

Scientia et Veritas Sine Timore.

PUBLISHED BY THE NEW YORK MEDICAL PUBLISHING CO.,

116 Nassau Street, NEW YORK.

All communications, of either business or editorial character, should be addressed to Gaillard's Medical Journal, 116 Nassau St., New York.

Articles for publication will be received with the understanding that they are contributed exclusively to this journal. Reprints will be furnished at actual cost, orders for which should accompany the manuscript. Authors of accepted articles may receive twelve copies of the issue in which they are published. Necessary illustrations will be furnished without expense to authors when suitable drawings or photographs are furnished.

EDITORIAL.

INTRODUCING THE CASTOR OIL PLANT IN A NEW RÔLE.

M. Plumocher, United States Consul at Maracaibo, has written to the State Department, we are told by the *Medical Record*, about a remedy which he has found for mosquitoes. "This," he says, "consists in planting the castor oil plant (*Ricinus communis*, or *Palma christi*) around the house and premises. In cold and temperate climates the castor oil plant grows to a height of four to five feet; in these countries it becomes a tall tree, and is perennial. It seems that the smell of the plant is disagreeable to mosquitoes and other insects, and it is an acknowledged fact that where these plants grow few mosquitoes are found. My personal experience bears this out."

Mr. Plumocher's communication is a particularly timely one, coming, as it does, when we are all wondering if the extirpation of the mosquito would mean the passing of malaria. It may be of interest to note that both mosquito and malaria have been associated in the minds of the laity, and of the profession as well, with low-lying, marshy ground. For years it has been recognized that to dry a swamp was to diminish both fever and mosquitoes, and this, without any recognition of a connection between the two.

The Eucalyptus tree has been used extensively, with the idea that its presence is a hoodoo to ague, and this has been explained on the ground that, owing to its great evaporating surface, it dries the soil in which it grows.

The connection between the mosquito and malaria has not yet been fully made out. That the mosquito is a source of infection there can be no doubt, but whether that is the only, or even the chief channel of invasion of the plasmodium, still remains to be seen.

At any rate, any plausible weapon with which to fight the gaunt serenader deserves a trial. Insomnia may be diminished if malaria is not.

We can say from our own experience that the castor oil plant grows well in this region. It is, however, killed by frost.

Perhaps even in the face of such data as those given above, it may be argued that epidemic diseases come and go, always at irregular and almost, it would seem, at capricious intervals; and that there is no good reason for insisting that because smallpox as a plague has left us, vaccination did it. However, a few more definite facts are to be brought in evidence.

We are indebted for the following facts to an article on the subject by Dr. C. D. Smith, President of the Board of Health of the State of Maine:

Before the Franco-Prussian war, the Germans had made vaccination compulsory in the army, but it was still an optional matter for the civil population. In France, it was optional for both army and civilians. The German army was vaccinated; the others were not. The French lost from smallpox 23,000 men, the Germans 278. In hospital tents, under the came conditions in every way, the French lost many wounded from smallpox; the Germans none at all.

The French prisoners of war died in large numbers of smallpox; their German guards did not suffer.

And among the German civilians—the disease was spread by the mingling incident to the war, and 143,000 people died of it.

In 1874 a law was passed in Germany making vaccination in the first year of life and vaccination at the tenth year obligatory. Before that time the yearly deaths from smallpox ran from 15,000 to 20,000. Now they are about 116, and these on the frontier, where there is constant mingling with the poorly vaccinated of other countries.

In Denmark, Sweden, and Norway, where vaccination is compulsory as it is in Germany, the annual death rate is from one to three per million, all of which would seem to show fairly conclusively that it is well that vaccination be kept up.

It seems a pity that with such an effective means of control at our command, a disease like smallpox should be still a slumbering menace. In the Montreal epidemic of 1885, 3,164 persons died, and there is no reason for supposing that such an epidemic may not occur in most of our cities at any time.

Vaccination, if general and suitably repeated, protects the community from epidemics. It protects the individual in most cases from the disease, and in practically every case from death or disfigurement.

If done cleanly, with sterilized animal lymph, such as is now easily obtainable anywhere, no ill effects are likely to result.

* * * *

For a long time bacteriologists have been making efforts to discover the presence of some specific microörganism in cases of acute articular rheumatism and a great literature bearing upon the investigation of this subject is now at our disposal. Much of it, while it bears upon inflammations of the joints, has no direct bearing upon articular rheumatism, as it is to be distinguished clinically from arthritis or synovitis, due to infection by the gonococcus. the pneumococcus, or by the so-called septic organisms. A great deal has been added to our knowledge of joint diseases by these investigations, but the cause of acute articular rheumatism is still obscure. In fact, from what is now known, it would seem probable that what we know as acute rheumatism is not produced by a single and definite species of microörganism, but is rather a condition that may be caused by many bacteria.

We may sum up our knowledge something like this: That there is a disease which we call acute articular rheumatism, characterized by sudden onset, chill, high temperature, coated tongue, sweating, pain and swelling of one or more joints, often preceded by inflammation of the pharynx and tonsils, often associated with skin lesions and with pericarditis, pleurisy and endocarditis. That it usually follows exposure to cold and wet, but that we do not know of any way in which that could cause such a disease, save by lowering the body resistance and allowing infection, as we know it does in the case of other infectious diseases.

That we may safely say that it is caused by some form of bacterial invasion, and that there is good reason to believe that the invaders circulate in the blood.

Out of the large numbers of investigators who have pursued the elusive microbe in the case, Triboulet, in 1897, Achaline, in the same year, and Singer, have arrived at definite results. Achaline's organism is a bacillus, which has been found inconstantly by other investigators in the blood, in the endocardium, and in the pericardium. Triboulet found a diplococcus in eleven consecutive cases. This he found in the blood, not always alone, but predominating. By inoculation experiments he reproduced an endocarditis. He believes this diplococcus is the cause of the endocarditis of rheumatism.

Singer concludes from his investigations that rheumatism is a disease produced by the entrance of pyogenic micrococci—these being attenuated forms of the ordinary septic germs.

And again, it is possible that the articular lesions and some of the other phenomena of the disease are the effect of toxins circulating in the blood, the bacteria producing them holding a fixed position in the body, from which place their poisons are absorbed.

This in brief is the status of the problem up to date. On another page we publish a report from London, in which it is stated that Drs. Poynton and Paine have been able to get some more definite results than those hitherto reported.

It is to be hoped that a further and more detailed report will soon come to us. Meanwhile, we recommend this subject to the consideration of our readers as one we may expect to know more about at no very distant day.

During the first week of December last the Board of Health of New York City discovered about thirty-five cases of smallpox in one section of the city. These were immediately removed to the hospital and a warning sent out. Scattering cases have occurred since that time in this city, and the disease has not been limited to this section of the State. Cases have been reported from all over the eastern half of the country, and a number have occurred in Salt Lake City.

The disease has not at any time been sufficiently widespread to cause very much alarm, but vaccination has been very popular. The Health Board of this city reports that from the outbreak of the disease up to January 19, there occurred 128 cases; that 10 of these were fatal. The State Board of Health reports 75 cases, the greater number in the northern part of the State.

It may now be said safely that in this city at least the danger of an epidemic is over. However, the appearance of smallpox here at all, or at least of such a number of cases as to call general attention to the fact, should be regarded as a warning.

These are days of congratulative retrospection upon the great advances that have been made during the past century in almost every department of human activity. The progress of medicine has come in for its share, and this with the better heart, because we think we are on the threshold of times still more wonderful and new, and if we are to judge of actual suffering diminished and good lives saved, few, if any of the discoveries of the past are to be compared with the one that Jenner gave to the world just before the nineteenth century began.

For before that time smallpox was most common and most fatal; after its introduction into Europe, about the time of the crusaders, for many centuries it was an expected thing, as the adage "From love and smallpox few remain free," will show. In 1517, it was carried by the Spaniards to St. Domingo, and three years later it reached Mexico, where it has been estimated (Robertson) that three and a half million people were destroyed. Epidemics of devastating severity raged in Greenland and Iceland in the early part of the eighteenth century. Homer made his discovery known in 1798, and vaccination was introduced into this country in 1800, by Waterhouse, of Harvard. Before vaccination became fairly general in England, the deaths from smallpox numbered 3,000 per million. In 1890 there were 15 deaths from the disease.

GAILLARD'S MEDICAL JOURNAL.

VOL. LXXIV. NEW YORK, MARCH, 1901. No. 3.

TO CUT OR CRUSH IN STONE OF THE URINARY BLADDER?

By STUART McGUIRE, M.D.

Professor of Principles of Surgery and Clinical Surgery, University College of Medicine; Surgeon in Charge St. Luke's Hospital; Visiting Surgeon Virginia Hospital, Richmond, Va.

The question whether to cut or crush in cases of stone in the urinary bladder is no new one, as lithotomy and lithotrity have both been practiced for over a thousand years. The opinion of the profession as to the relative value of the two methods has varied, first one and then the other gaining ascendency.

In the first century, Celsus wrote a clear description of lithotomy, and the operation was frequently performed. In the tenth century Albucasis described an instrument which could be passed along the urethra, "seize the stone, crush it, if soft, and remove it." In the seventeenth century, Beaulieu, a Franciscan monk, performed several thousand perineal lithotomies, and is reported to have operated on thirty-eight consecutive cases in Versailles without a death.

In 1818, Civiale invented his litholabe, and some years afterwards reported seventy-eight cases in which he had crushed and removed stone, with five deaths. In 1878, Gross advocated the cutting operation, and reported 165 lithotomies, with 14 deaths. In the same year, Bigelow invented his evacuator, and the possibility of doing lithotrity (or litholapaxy, as it was then called) at one sitting, created great enthusiasm. In 1884, Henry Thompson reported 116 cases of lithotrity, with six deaths. In 1890, Hunter McGuire reported twenty-six cases of supra-pubic cystotomy for stone, with one death. In 1893, Chismore reported fifty-four cases of lithotrity, done by a series of short sittings under cocaine, with no deaths.

Having attempted to show the curious vacillation of surgical opinion as to the relative merits of the two operations in the past, I will now try to find expression for the accepted views of the present. I believe it can be most fairly done by quoting from new and standard text-books which treat of the subject.

White and Martin.—"The two received methods of treatment are litholapaxy and cystotomy. Litholapaxy is in both adults and children the method of choice."

---

*Paper read before the Tri-State Medical Association at the Third Annual Session, held in Richmond, February 26, 1901.

Lydston.—"The supra-pubic operation is so safe in favorable cases that it is preferable to litholapaxy, unless the surgeon is expert in its performance."

An American Text-Book of Surgery.—"The possible methods of removing a given stone from the male bladder are perineal lithotomy, supra-pubic lithotomy and litholapaxy. The remarkable changes brought about by the introduction of the last named method has greatly reduced the field of the first two."

Wyeth.—"The conditions in which lithotrity is to be preferred to lithotomy are rare."

Treves.—"Litholapaxy is now the recognized operation for all cases of vesicle calculus in males."

Moullin.—"Calculi must be removed from the bladder by crushing or cutting. The former is more common, and has to a great extent superseded the latter."

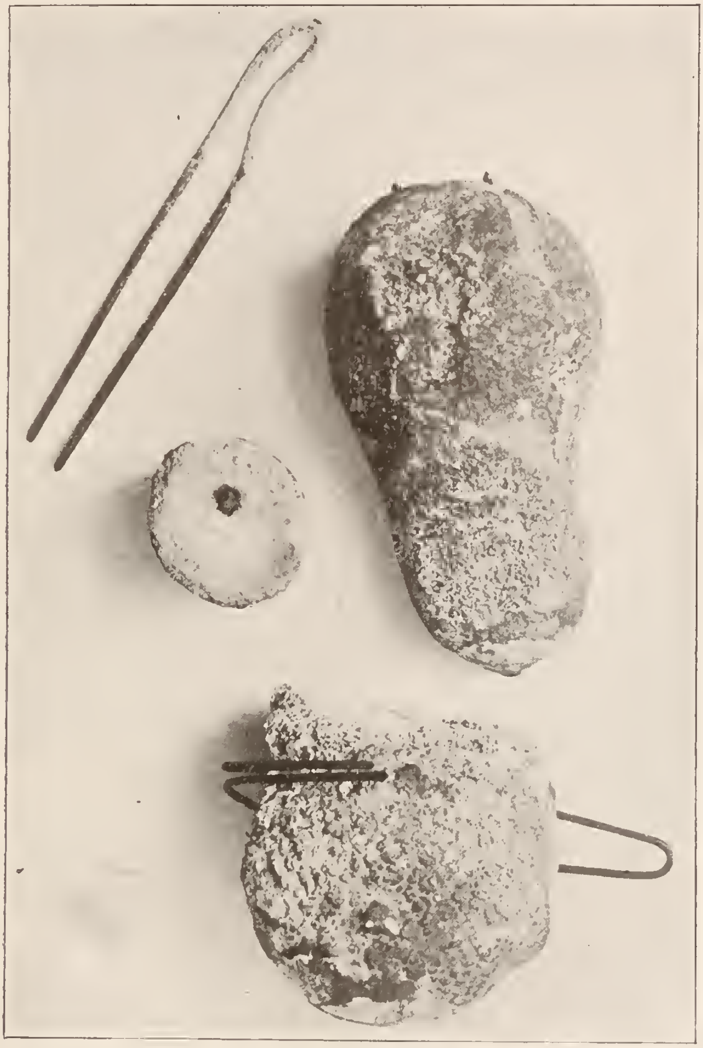
Wharton and Curtis.—"Lithotomy is indicated in cases not suited for crushing, although the recent improvements in supra-pubic cystotomy bid fair to make it the rival of the method by crushing in all cases."

From the extracts given it will be seen that both methods are advised, but the surgeon is taught by the majority of the authorities to perform lithotrity as the operation of election, and lithotomy as the operation of compulsion. In other words, that the cutting operation should only be done when the crushing operation is impossible. I believe this teaching is a survival of the pre-antiseptic era, and does not accord with the practice of the modern surgeon. Twenty years ago, when the use of the knife was attended by danger to life from septicemia, or slow and complicated convalescence from suppuration, it was undoubtedly sound, but to-day, with the aseptic and antiseptic technique and the perfection of the supra-pubic operation it is false and misleading. From a limited personal experience with both operations, and a careful study of the literature of the subject, I believe lithotomy should be the operation most frequently performed, and lithotrity reserved for a few carefully selected cases. The demonstration of the truth of this statement can best be made by a comparison of the advantages and disadvantages of the two operations under separate headings.

Mortality.—Figures seem to show that lithotrity is safer than lithotomy, but in making a deduction from statistics it must be remembered that they are based largely upon work done before the introduction of antiseptics; that simple and easy cases were crushed, and difficult and complicated cases cut; and, finally, that the results of a few expert lithotritists are compared with those secured by a number of average lithotomists.

Requisite Skill and Experience.—Lithotrity is undoubtedly a more delicate and difficult operation than lithotomy. It is blind surgery, liable to be attended by annoying complications or dangerous accidents, and should not be undertaken by one not thoroughly familiar with the manipulation of instruments in the urethra and bladder. Lithotomy, especially if done by the supra-pubic route, is one of the simplest operations in surgery, and may safely be attempted by any one of fair experience in general operative work.

Injury to the Soft Parts and Septic Sequences.—It is claimed that lithotrity creates no breach of continuity of tissue, while lithotomy leaves a wound of considerable gravity, and, therefore, the former operation is followed by more rapid recovery. This is true in selected cases in the hands of expert operators, but in many instances where the stone is



large and hard, and the surgeon less experienced, manipulations are prolonged and rough, and there is considerable bruising and laceration of the mucous lining of the urethra and bladder. Copious hemorrhage is not uncommon, and the bleeding points are inaccessible to direct hemostasis. There is practically no drainage and septic sequences sometimes follow, manifested by urethral fever, urethritis, cystitis, prostatitis, epidydimitis or phlebitis.

In lithotomy, especially if done by the supra-pubic method, there is no contusion of the mucosa of the urinary tract, but simply a clean-cut incision through unimportant structures. There is practically no bleeding, and if it does occur from complications, it can be controlled by the ligation of vessels or direct tamponade of the bladder. If sepsis follows, which is unlikely owing to the free drainage afforded, it can be combated by irrigation of the wound, bladder and urethra with antiseptic solutions. The duration of convalescence after lithotrity is uncertain. It may be shorter than lithotomy—it may be longer.

Ability to Diagnosticate and Treat Other Pathologic Conditions.—Stone in the bladder is usually found at the two extremes of life. In the young it is usually uncomplicated; in the old it is often associated with enlargement of the prostate, severe cystitis, or vesicle tumors. Lithotomy has the advantages in both instances, as it avoids the dilatation of the undeveloped penis and small urethra of the one, with the danger of incontinence and impotency; and affords direct examination of the interior of the bladder in the other. making accessible to surgical correction any co-existing disease present, and affording subsequently the necessary drainage of the cavity of the viscus.

Permanency of Results.—There is certainly more liability to the recurrence of stone after lithotrity than after lithotomy. In old men with enlarged prostates it is impossible to be sure of removing all fragments after crushing, and it is also possible to overlook a small stone in cases of multiple calculi. If a single particle is retained in the bladder it will act as an exciting cause to the predisposing diathesis and result in the production of a new stone. I recall the case of an old man with a sacculated bladder who was twice crushed for stone. On his third return to the hospital I did a supra-pubic lithotomy and removed five small calculi. Since then he has remained well.

Simplicity and Freedom from Mechanical Complications.—While questions of economy have no place in surgery, and the fact that lithotrites and evacuators are expensive and perishable is no argument against lithotrity, the simplicity and freedom from dependence on the mechanical action of complicated instruments is a strong point in favor of lithotomy. Many cases are reported where surgeons had clogging, bending or breaking of the blades of a lithotrite to occur in the bladder, and were forced to resort to the knife to complete the operation. Only recently I found myself in a predicament which would have been ludicrous if it had not been dangerous. I was crushing a soft stone of medium size in the bladder of a boy aged 17, who weighed nearly 300 pounds; the operation of lithotrity being selected on account of the patient's obesity. The stone was readily seized and crumbled at the first turn of the screw. The instrument was opened, and several of the fragments caught and broken. It was then observed that the blades would not close. Every known expedient was tried to free the impaction, but failed. A supra-pubic cystotomy was finally done, a sticky, gummy mass cleared from the jaws of the lithotrite. and the instrument closed and withdrawn. A subsequent interrogation of the boy secured the confession that some time before his admission to the hospital he had introduced a bolus of chewing gum into his urethra, which had slipped from his grasp and passed into the bladder, doubtless forming the nucleus of the stone.

Range of Application.—Lithotomy may be done in any case, and has no limitations other than those of general surgery. Lithotrity is admitted by its advocates to be contra-indicated in the following conditions:

1. When the stone is hard and cannot be crushed by instruments capable of being used through the urethra.

2. When the stone is large and cannot be grasped by reasonable separation of the jaws of the lithotrite.

3. When the stone is brittle and the resulting fragments sharp and irregular.

4. When the stone is fixed or encysted.

5. When the stone has a foreign body as a nucleus, which cannot be crushed and removed.

6. When the prostate is enlarged, or the bladder contracted, making it difficult to seize the stone.

7. When there is a tight or impassable urethral stricture requiring a long operation to relieve.

8. When there is ankylosis of the hip joint in a position embarrassing the movements of the lithotrite.

9. When the general condition of the patient is such as to make shock dangerous and rapid work necessary.

In corroboration of the above, I wish to exhibit some specimens of stone with foreign bodies, as nuclei, removed by my father, Dr. Hunter McGuire, by lithotomy. It is obvious that an effort to operate by lithotrity would have resulted in failure.

In the history of the cases on which he operated for vesicle calculi there are nine instances of stone with foreign bodies, as nuclei, as follows:—four hairpins, two bullets, one piece of bone, one piece of gum catheter, and one section of a silver catheter. One of these specimens has been lost, one was destroyed by the patient, three are now in the Army and Navy Medical Museum, and the other four are herewith presented.

I also wish to report a case in which I acted as his assistant. As soon as the stone was caught in the blades of the lithotrite and subjected to pressure, it flew to pieces, as if it were glass. The operation of lithotrity was at once abandoned, and the bladder opened above the pubes. The fragments of the stone were gently removed with the finger, and were found to have razor-like edges, which would undoubtedly have seriously injured the walls of the viscus had the first operation been continued.

Conclusion.—For fear of being misunderstood, permit me to repeat the views I maintain in regard to the two operations. I do not condemn the crushing operation, for I believe it is the best method to employ in certain cases. What I do condemn is the abuse of the operation by the efforts of its advocates to substitute it for the cutting operation in cases for which it is not suited. As previously stated, I believe that *lithotomy should be the operation most frequently employed, and lithotrity reserved for a few carefully selected cases.*

PHARYNGEAL ADENOIDS, THEIR FREQUENCY AND SEQUELAE.

By PHILIP D. KERRISON, M.D., New York,
Attending Otologist, University and Bellevue Medical College Clinic.

The so-called pharyngeal tonsil is a physiological structure, and it is only when it becomes unduly enlarged, or hypertrophied, that its presence can be looked upon as a patholgoical condition.

Normally, it cannot be appreciated by inspection by reflected light, nor by the palpating finger, nor does it produce symptoms. When, however, either through engorgement of its vessels, or increase of its connective tissue, it becomes sufficiently enlarged to produce the smallest degree of obstruction to nasal respiration, it must be looked upon as an abnormal condition involving many dangers to the patient's future development and physical well-being.

In the present paper, the writer lays no claim to having any original matter to present, his purpose being rather to emphasize certain facts, well known to those who have given the subject special study, but which are, perhaps, not sufficiently recognized by the profession at large.

Cases in which the pharyngeal growths are of very large size may present objective symptoms so characteristic and familiar as to require no description When a child habitually breathes through the mouth, wears a dull and rather vacant expression of countenance, is peevish or listless in manner, presents symptoms of nasal catarrh, where the general appearance is suggestive of anemia or malnutrition—given such a picture, the physician's mind will at once revert to a nasopharyngeal growth as the most probable of underlying causes.

These are not the most dangerous cases, for in the multiplicity of symptoms there is safety to the patient, as they demand and insure prompt and decisive treatment. But, unfortunately, only a very small percentage of cases present this formidable and suggestive array of symptoms. In the great majority of cases, the growth in the pharynx produces only partial obstruction to the passage of air through the nasal cavities, and is accompanied by but few symptoms, and these the reverse of pathognomonic. That these cases are often presented to the family physician, and are treated unsuccessfully because the underlying cause has not been suspected, there can be no doubt.

Many of the sequelæ of this condition have been sketched so often in text-books and medical journals that their repetition would seem unnecessary. The arrest of development that occasionally follows the development and neglect of these growths is such as may result from a more or less complete nasal obstruction due to any cause. The characteristic changes in the facial expression are supposed by some to be due in part to anatomical changes in the superior maxillary and palate bones; and these anatomical changes are supposed to be produced in the following manner: The exaggerated inspiratory efforts when the patient attempts to breathe through the nose, and the inadequate amount of air passing through the nares, cause rarefaction of the air in the pharynx, with the result that the alveolar arches are drawn inward toward each other, and the upward arch of the hard palate is increased. Should the adenoid growths be allowed to remain until after the second dentition, the above changes may be more pronounced, and the permanent teeth may be crowded together and protrude to a noticeable and disfiguring degree. As a result of the forcing upward of the hard palate, the floor of the nose is elevated, giving rise to a deviation of the nasal septum later in life. The narrow chests, delayed general growth, and the appearance of weakness, making the little sufferers appear younger than they are, are also well known as conditions characterizing extreme cases.

But while the above anatomical changes unquestionably do exist in certain cases as a result of naso-pharyngeal growths, they are probably exceptional rather than the rule; and it is undoubtedly true that pharyngeal adenoids of large size often exist for a considerable length of time without producing any such marked physical signs. To depend, therefore, upon any classical train of symptoms or group of physical signs for the diagnosis of these growths, would be to let many cases pass before our eyes unrecognized.

A class of symptoms well known to follow hypertrophy of the pharyngeal tonsil is that due to catarrhal inflammations in neighboring portions of the upper respiratory tract. Dr. Bosworth (1) has called attention to the fact that "acute rhinitis is comparatively rarely met with in a child, and that in such cases it is really suffering from a subacute inflammation of the pharyngeal tonsil." The secondary rhinitis is probably due to irritation from retained nasal secretions, and occurs whenever, from exposure, the pharyngeal growth becomes temporarily enlarged. The frequent attacks of epistaxis, which are thought by some to be characteristic of adenoids, probably occur as one of the symptoms of the secondary rhinitis before referred to. That pharyngitis, laryngitis, tracheitis and bronchitis should frequently occur intercurrently with pharyngeal adenoids is not surprising. Remembering that it is among the functions of the nose to filter, and add warmth and moisture to the inspired air before it reaches the pharynx, and that these patients are usually mouth-breathers, at least during a portion of the 24 hours, these conditions appear to be logical sequences. When, therefore, a child is more than usually prone to contract any of the above inflammatory conditions of the upper respiratory tract, an examination should always be made, which will enable us either to remove the pharyngeal growth or exclude it as an etiological factor.

Pharyngeal adenoids are supposed to be the occasional cause of certain conditions usually classed as neuroses. They certainly predispose to such affections as pertussis, asthma and laryngismus stridulus.

Eustace Smith (2), of London, is of this opinion, and cites the case of an infant treated by him in the East London Hospital, in whom laryngeal crowing of a type so distressing as to endanger life had persisted since birth. The symptoms completely disappeared within a few days after the removal of a postnasal growth.

That the presence of adenoids in the pharynx adds greatly to the individual's susceptibility to the germs of tuberculosis and diphtheria is a fact that has been emphasized by many observers, and if their conclusions are well founded, it would seem that an examination for adenoids, and their removal when found, should be as much a matter of routine as is vaccination as a prophylactic measure against smallpox.

Lewin (3), of Russia, has made 200 careful microscopical examinations of adenoid growths removed from the pharynx, with reference to the presence of tuberculosis, evidences of the disease being found in nine out of the 200 cases. Other observers in other parts of the world have made similar investigations with similar results, "the sum total of observations published 905 cases with 45 tubercular findings," or about 5 per cent. of the cases examined. In many cases, the patients in whom these tuberculous deposits were found have been absolutely free from any other sign or symptom of the disease.

Plottiers (4), of France, has demonstrated the influence of adenoids in increasing the mortality among children suffering from diphtheria. He argues that the presence of a vascular growth at a point in the pharynx most infested with microbes, and the patient's diminished power of resistance, must necessarily increase the dangers of infection and diminish the chances of recovery. Following this line of thought, he held post mortems on 38 cases of children dying of diphtheria in the Hôpital des Enfants Malades, Paris, and found well-developed adenoid growths in 50 per cent. of the cases examined. In one case, he found the diphtheritic membrane on the vegetations, while the mouth was completely free.

But perhaps the most important of the train of evils following adenoids are the ear complicatioins, for in many cases it is only by an early recognition of these growths, and their prompt removal, that the little sufferers can be saved from permanent loss of hearing. All authorities agree as to the gravity of these dangers.

Dench (5) states that pharyngeal adenoids "are responsible for more than half the pathological conditions met with in the middle ear."

Bosworth (6) asserts that "the proportion of cases that escape ear trouble is small," while Kyle (7) holds that at least 90 per cent. of cases of adenoid growths are accompanied by some degree of deafness. Yet, in spite of all that has been written on the subject, it is doubtful whether sufficient thought is given to the importance of guarding against these ear complications. Investigations instituted during the past few years in different parts of the world seem to prove that a very large proportion of existing deaf-mutism had its origin in adenoids during childhood. Jankelevitch (8), at Prague, Austria, examined 158 deaf mutes and found adenoid vegetations of considerable size in over half (54 per cent.) of them. Wroblowski, of Poland, found pharyngeal adenoids in 57 per cent. of deaf mutes examined. James Kerr Love (9) "found that 70 per cent. of the deaf-mute children of Glasgow had adenoids." In our own country, C. R. Holmes (10), of Cincinnati, has "made a careful examination of 450 deaf mutes in the Illinois State Institute at Jacksonville, and found an abnormal development of the third tonsil in 231, or 50 per cent."

Sendziac (11), of Warsaw, Poland, gives the results of similar examinations by other investigators, the percentages varying from 50 to 73 per cent. He also relates the following case from his own practice: A child 5 years old was referred to him as a case of congenital deafness; a brother of the patient, 20 years old, was also a congenital deaf mute; a sister, also congenitally deaf, died in her 4th year. Careful functional examination showed that the child could neither hear nor speak. Palpation revealed the presence of enormous pharyngeal adenoids. The growths were removed under full anesthesia. Three months later the child was brought back with the hearing improving and was rapidly learning to articulate. Arslan (12), of Turin, Italy, operated for the removal of adenoids in two cases of deaf-mutism, "relieving one and curing the other, both as to hearing and speech." In this country, Getchell (13), of Worcester, Mass., records three cases of deaf-mutism, in which he removed adenoids, in one of which cases improvement followed the operation. Jankelevitch sums up the conclusions to be deduced from his investigations somewhat as follows: Without denying the existence of congenital deaf-mutism he contends that it is much rarer than it is generally supposed to be, and that most cases should be regarded as acquired and due to the presence of adenoid vegetations during infancy.

But, if adenoids are the cause of many cases of deaf-mutism, how much greater is their weight of responsibility in the production of the lesser ear lesions with partial impairment of hearing? That it is great is evidenced by the frequency with which children, brought to the ear clinics with symptoms referable to the ear, have to be subjected to an operation for the removal of adenoids as a preliminary measure of treatment. Additional evidence that the adenoids and ear symptoms stand in these cases in the relation of cause and effect may be found in the recorded cases of Dr. Haight (14), in which the adenoid growths were confined to one side of the naso-pharynx; in these cases, functional examination revealed impairment of hearing on the side corresponding to that of the growth, the hearing in the opposite ear remaining normal.

The ear lesions first occurring as a result of adenoids are undoubtedly to be found in the conducting portion of the auditory apparatus; *e. g.*, tubal catarrh, tubo-tympanic congestion, actue otitis media, acute purulent otitis, etc., conditions often following each other in the order named. But where the adenoids are allowed to remain, evidence is not wanting of the fact that in many cases the labyrinth also soon becomes involved. Dr. Dench (15) has pointed out that many cases of tubal catarrh accompanying adenoids present, upon functional examination, not the characteristic reactions of that affection, but diminished bone conduction, and sometimes a hyperesthetic condition of the auditory nerve, "which phenomena indicate an irritative lesion of the labyrinth." The influence of adenoids in the causation of the ear lesions occurring in adult life is not so easy to determine, for by this time all traces of such a growth have usually disappeared. But one cannot avoid the belief that many of the adult patients applying for treatment for some form of chronic otitis are in reality experiencing the results of lesions which have existed from childhood, but which have been so gradual in their development that only in adult life have the symptoms become sufficiently pronounced to attract the patient's attention.

Before leaving the subject, I should remind the reader that adenoids may occur in adults as well as in children. While they are usually developed during childhood, and tend to disappear spontaneously after the 13th year, there are many exceptions to that rule, and it is by no means uncommon to find well-developed adenoids in people of adult and even middle life. One of many such cases on record is that recently reported by Dr. Potter (16), where the patient was a woman of 47, and the symptoms complained of were those of impaired hearing and difficult nasal respiration. Examination revealed the presence of a large postnasal growth, which was removed under ether, and proved under the microscope to consist of adenoid tissue. The hearing improved greatly within two weeks after the operation.

As to the treatment, experience has shown that adenoid vegetations, when thoroughly removed, do not as a rule recur, but that when any part of the growth is allowed to remain, the tendency to recurrence is marked. The treatment, therefore, resolves itself into any method accomplishing thorough ablation, or removal. This is best accomplished by the use of the Brandegee, or other suitably constructed adenoid forceps, which grasps and removes the growth piecemeal or in bulk, the site of the removed growth being then curetted with a Gottstein curette, which removes any remaining shreds of adenoid tissue. In this operation, thoroughness is of paramount importance, and this is best attained with the patient under the influence of a general anesthetic.

In conclusion, the writer feels justified from the facts adduced in basing thereon the following conclusions:

1. That pharyngeal adenoids in children are very much more common than they are generally supposed to be.
2. That cases of moderate development are often not recognized.
3. That adenoid growths of moderate size, though not necessarily accompanied by marked symptoms at the time of their development, are often responsible for grave conditions felt during adolescence and adult life.
4. That, unless removed, pharyngeal adenoids are in nearly all cases accompanied by more or less impairment of hearing.
5. That the presence of adenoids adds greatly to the gravity of intercurrent diseases, and increases the patient's receptivity to the germs of tuberculosis and diphtheria; and, therefore,
6. That the periodical examination of children for the presence of adenoids should become a routine measure of prophylaxis.
7. That cases of moderate development, no less than those in which the growths are of large size, demand prompt surgical treatment.
8. That the treatment should aim at complete ablation or removal of the growth, which in most cases is best accomplished with the patient under the influence of a general anesthetic.—*N. Y. Med. Journal.*

CONCERNING THE ETIOLOGY OF ASTHMA.*

By JOHN DUNN, M.D., Richmond, Va.

GENTLEMEN—In my earlier studies of the nose and its diseases perhaps no one statement struck me more forcibly than that of Dr. Bosworth, to the effect that he had cured (and, I inferred, permanently) 19 out of 34 cases of hay asthma and 28 out of 46 cases of perennial asthma by surgical treatment of the intra-nasal tissues. For 11 years I have watched carefully the results of intra-nasal surgery in every case of hay and perennial asthma which has come under my care, and while I have made friends, have afforded relief from many annoying symptoms to more than one or two people, and while immediately after differing intra-nasal operations I have seen the asthmatic attacks disappear for varying lengths of time; the more closely these cases are observed the more convinced am I that it is neither hypertrophic rhinitis, nor nasal spurs, nor ethmoiditis, with its polypi which causes asthma, and it has been my experience that, save in very rare instances, intra-nasal treatment cures neither hay nor perennial asthma. I have seen an asthmatic attack of great severity cut short in a few moments by the application of an 8 per cent. solution of cocaine to the nasal mucous membrane, and the patient have no or only a slight recurrence for weeks. In the especial case I have in mind, where this happened, the gentleman has perennial asthma, had been for a long time under the care of a distinguished member of this Society, has had asthma for many years, and has it still. I have seen more cases where the intranasal application of cocaine has had little or no effect upon the severity of the asthmatic attack. I have under my care now a lady of 65 years, Mrs. T., who consulted me for nasal obstruction. Examination revealed complete blocking of the nasal cavities with polypi so numerous and large that they protruded from both anterior nares, and posteriorly from both sides of the nose into the naso-pharynx. Their removal showed a large obstructive nasal spur and extensive ethmoiditis. Her history is not uninteresting. Some six or seven years ago, while she was suffering greatly from rheumatism, her husband was paralyzed and his brain injury resulted in a most distressing mental condition. While nursing him, our patient, who was his constant attendant, and often at night walked in her bare feet from room to room in her hurry to wait upon him, developed asthma of a severe type, which lasted for about three years, or until her husband's death. Shortly after his death she took some quack medicine for about ten days, and the asthma disappeared—nor has she had an attack since, now some three years—and yet there exists an obstructive septal spur and a most extensive ethmoiditis with numerous polypi.

Mrs. T., a sufferer from rheumatism, is of a gouty family and has tophi about the joints of her fingers. Or, take the case of Dr. G., aged 50, who, for 30 years or more, has suffered intermittently from asthma. "When I am free from asthma I have rheumatism like the devil; and when I am free from rheumatism I have asthma"—his account of his case.

---

*Read before the Southern Section of the American Otological, Rhinological and Laryngological Society, at Richmond, Va., December 1, 1900.

With him any marked change of climate is sufficient to give him for a shorter or longer period cessation from his asthma. The time comes, however, when he has worn out his topographical welcome and—his asthma returns. He has a moderate deviation of the bony septum and some turbinate hypertrophy. Dr. G. has consulted how many nasal specialists I know not, but certainly others besides myself.

Mr. L., aged 48, has a straight septum, and while there is some over-filling, especially of the blood vessels of the inferior turbinates, there is no marked hypertrophy, and yet he suffers from perennial hay fever of such severity as to make life a burden. During the attacks his nasal mucous membrane assumes that watery, swollen, quasi-œdematous, anemic appearance which, to the trained eye, tells the nature of the trouble. Mr. L. may be seemingly in good health; he will take his seat at the dinner table and there are certain forms of food which, within a few moments after ingestion, will bring on an attack of over-filling of the nasal membranes, hypersecretion of watery mucus and sneezing, with sensations of great burning and itching of the intra-nasal tissues, nor will the attack subside for days. Mr. L. has consulted several of our nasal specialists, and has submitted to enough burning and cutting at the hands of more than one to have demonstrated to him its usefulness as a remedial agent in his own case.

Mr. P., aged 54, has suffered for 15 or more years with autumnal hay fever in its severest form. Before he became a victim to this disease he had for months a form of diarrhea, for which his local physicians could do nothing. He visited one of the Virginia Springs, seeking relief. While there he mentioned to one of the habitues the object of his visit, and was informed that the waters would check the diarrhea, but that he would become a victim of hay fever. This lay prophet told true. The diarrhea ceased; but since then he has had hay fever every autumn save one, and this one his diarrhea returned and lasted throughout the hay fever season. Mr. P.'s nasal cavities are, save when he is suffering from hay fever, normal in appearance.

Last spring I was consulted by Mr. A., aged 26, whose complaint was that whenever he rode or drove he would have a profuse discharge of irritating fluid from his nose; this would be followed by asthmatic wheezing in his chest and shortness of breath. These attacks would come on at irregular intervals, but could be precipitated at any time by taking a drive in the open air. There were constantly present uncomfortable sensations in the nose, examination of which revealed extensive ethmoiditis with several small polypi. The middle turbinates and such portion of the ethmoidal cells as was deemed advisable were removed. The result? Mr. A. passed the summer in greater comfort than he had known for years, so far as his nasal and asthmatic attacks were concerned, but he suffered from an obstinate form of diarrhea, characterized by the passage through the intestines of many forms of food apparently totally undigested. I have notes of more than one similar case.

Mr. S., aged 65, suffered from asthma until he reached middle age, when gout of the toe developed. He has never had another attack of asthma, but continues still to suffer with gout in no light form. And lastly, Mrs. M., aged 72, suffers at varying lengths of time with much discomfort and at times considerable pain in the frontal sinuses; during these periods of discomfort there is a constant dripping of a clear, watery fluid from her nose. A course of salol will cause the pain to diminish and the secretion to cease; but, at the same time, it so lessens the urinary excretion that she fears to take it. Her fingers show gouty deposits.

The above cases appear at first glance to have been snatched from a grab-bag of asthmatic notes and presented unconnectedly. It is not so. To me they all seem to teach clearly the lessen that neither "a neurotic condition," nor "some obscure atmospheric condition," nor "a diseased condition of the nasal mucous membrane"—if we use the term diseased to mean turbinate hypertrody or ethmoiditis with polypi—neither one nor all are essential for the production of asthma. To me the above cases, and not a few others, similar in essentials, seem to show that many of the intra-nasal conditions found in asthma are due to a cause similar to the rheumatic and gouty attacks, the diarrheas and eczematous outbreaks and many other of the systemic disturbances which are found accompanying or alternating with the asthmatic attacks. Asthma cannot be due solely to ethmoiditis, for, if so, why does it not occur always as a result of ethmoiditis? Why, in some cases, do the asthmatic attacks disappear and permanently in the presence of ethmoiditis, untreated, unchanged, unchecked? Simple hypertrophy of the turbinated tissue cannot be looked upon as a cause of asthma, for were it so asthma would be the most common disease of mankind. The "general neurotic condition" as a *sine qua non* of asthma has always seemed to me the weak spot in Dr. Bosworth's teachings; for hay fever and asthma attack every known temperament. Nor can the "obscure atmospheric condition" be allowed a place as a cause. Its very obscurity forbids it. For some asthmatics this "obscure atmospheric condition" is present at all seasons of the year, at all hours, day or night. Let us look for a moment at some of the cases above mentioned. It is highly probably in the case of Mrs. M. that the intermittent attacks of pain in the frontal sinuses, with the resultant rhinorrhea, are due to gouty irritation of the mucous membrane of the frontal sinuses. (The intra-nasal tissues are practically normal.) If gouty irritation can produce pain and discomfort with an excessive watery discharge from the mucous membrane of the frontal sinuses, there seems to me to be no reason why the gouty processes may not produce intense irritation of the mucous membranes of the nasal cavities.

Mr. L. had asthma until gout developed, when the asthma disappeared permanently. Dr. G. has rheumatism and asthma alternately. Mrs. T. had asthma; she now has gouty deposits in her fingers and never suffers from asthma. Mr. P. has hay fever each autumn, save when he has an attack of chronic (probably gouty) diarrhea. In other cases, to be seen constantly in practice, asthma coexists or alternates with some well-known disease in the same individual, and the patient's account of the exacerbations of each are always interesting.

But, gentlemen, I would not have you think I believe that disturbances of the intra-nasal tissues bear no causal relation to the production of asthma. Far from it, for in an experience of 11 years I have seen very few cases of asthma in which there did not exist visible intra-nasal conditions which I believed were directly responsible for the origination of the asthmatic attack. If the retention in the blood of the products of tissue metabolism can produce rheumatism, gout, diarrhea, eczema, and various other diseases, can, as time passes, cause degeneration of the walls of the blood vessels, should we consider it any wonder that these same products can by their irritative effect cause intra-nasal disturbance? This brings me to the point of my contention, and I lay no claims whatever to any originality: Asthma I believe to be in most cases a reflex trouble, caused by the irritating effect of the retained products of tissue metabolism upon the intra-nasal mucous membranes. The two chief intra-nasal visible conditions which tell of this irritation are, first, that watery, swollen, quasi-edematous and, in old cases, anemic appearance of the turbinates and general nasal mucous membrane, due possibly to vaso-motor paralysis, a condition accompanied by an abnormal secretion of watery mucus and much nasal discomfort. The second is ethmoiditis with its resulting polypi. Both these conditions are the result of the irritating effect of the retained products of tissue metabolism upon the nasal mucous membrane, and are of the nature of gout.

Asthma is not a reflex of the swollen turbinates or of the ethmoiditis with its polypi, but of the intense irritation caused by the action on the mucous membrane of the metabolic products. This irritation may cause reflex asthma in a person whose nasal mucous membranes are between the asthmatic attacks perfectly healthy so far as can be judged by the naked eye. It may be so intense as to cause ethmoiditis, and thus beget nasal-polypi. Hay fever is a direct expression of this irritation. The two diseases are thus closely connected and not infrequently coexist in the same individual. Many of you, gentlemen, have doubtless wondered why I have not already used the terms uric acid and uricacidemia. I have not done so because I am not sure that uric acid is the only product of tissue metabolism which, when retained in the blood and forced into the tissues, is capable of producing irritating effects. That uric acid is the chief product in bringing about the disturbances under consideration I think not unlikely.

If the view above taken be the correct one, then we can see at once that very few cases of asthma can be permanently cured by intra-nasal treatment of any kind. I do not say that intra-nasal surgery in cases of asthma with deflected septa, septal spurs, ethmoiditis with its polypi, etc., is not justifiable, but my experience has led me to believe that although surgical measures may, in these cases, afford, in many different ways, more or less relief to the patient, at the same time they are not to be looked upon, save in rare instances, as methods of effecting a permanent cure of asthma.

Stated briefly, the object of this paper is to state that it seems to me that in most cases asthma is a reflex upon irritation of the nasal mucous membranes; that the swollen turbinates and ethmoiditis with its polypi found in asthmatics are the visible results of this irritation; that the irritation is caused by the action on the nasal mucous membranes of the retained products of tissue metabolism; and, lastly, that this view places asthma in the same class of diseases with gout and epilepsy, the difference in the focus of irritation causing the difference in symptoms.—*Charlotte Medical Journal.*

RESTRICTION AND PREVENTION OF SCARLET FEVER—SOMETIMES CALLED "SCARLATINA," "SCARLET RASH," "CANKER RASH," OR "RASH FEVER."

(*Document Issued by the Michigan State Board of Health.*)

1. Scarlet fever is one of the most contagious diseases. One attack usually prevents subsequent attacks. The greatest numbei of deaths from this disease is of children under 10 years af age. Adult persons sometimes have the disease; and even though they have it in many instances in a milder form, yet they may communicate the disease in a fatal form to children. The isolation of those mildly sick with, and convalescent from, scarlet fever, is important.

2. Scarlet fever is believed to be caused by a special contagion or poison, which may be conveyed, to persons previously unaffected, by personal contact, by infected clothing, rags, hair, or paper, or by any of the discharges from the body of a person afflicted with the disease.

3. The discharges from the throat, nose, and mouth are considered extremely dangerous, but those from the skin, eyes, ears, kidneys, and bowels are also dangerous, and remain so for a considerable time.

4. Communication: It is believed that the disease may be communicated by a person recovering therefrom so long as the usual subsequent scaling or peeling of the skin continues, which sometimes is not completed before the lapse of seventy or eighty days. The germs may also remain in clothing, etc., for a long time; possibly for years, especially if woolen and packed away in drawers or trunks.

5. Filth, uncleanliness, and imperfect ventilation may increase the danger of spreading the disease.

6. Period of incubation. The interval of time which may elapse after exposure to the contagium of scarlet fever, and during which a susceptible person so exposed may expect to be taken sick with the disease, varies from one to fourteen days.

7. Separation of the sick from the well. Whenever a child has sore throat and fever, and especially when this is accompanied by a rash on the body, the child should immediately be isolated as completely as possible from other members of the household, and from other persons, until a physician has seen it and has determined whether it has scarlet fever. All persons known to be sick with this disease (even those but mildly sick), should be promptly and thoroughly isolated from the public.

That this is of more importance than in the case of smallpox is indicated by the fact of the much greater number of cases of sickness and of deaths from scarlet fever—a disease for which no such preventive as vaccination is yet known.

8. Persons who are attending upon children or other persons suffering from scarlet fever, and also the members of the patient's family, should not mingle with other people nor permit the entrance of children into their house.

9. Plain and distinct notices should be placed on the premises or

house in which there is a person sick with scarlet fever; the placard should remain so long as there is in the premises contagium which may communicate the disease, and no child that has not had the disease should be allowed to enter, or to associate with persons who do enter such house or room.

10. Children believed to be uninfected may be sent away from the house in which there is scarlet fever, to families in which there are no persons liable to the disease, or to previously disinfected convalescent wards in hospitals; but in either case they should be isolated from the public until the expiration of the period of incubation, counting from the time of their removal.

11. Householders and physicians must immediately give notice of the first case, and of every case of scarlet fever, to the health officer.

12. The room in which the one sick with this disease is to be placed should previously be cleaned of all needless clothing, carpets, drapery, and other materials likely to harbor the poison of the disease, except such articles as are essential to the well-being of the patient, but, except after thorough disinfection, nothing should be moved about which has already been exposed to the contagium of the disease. The sick room may have no carpet, or only pieces which can afterwards be destroyed. Provisions should be made for the introduction of a liberal supply of fresh air and the continual change of the air of the room without sensible currents or drafts.

13. Handkerchiefs that need to be saved should not be used by the patient; small pieces of rag should be substituted therefor, and, after being once used, should be immediately burned.

14. Soiled clothing, towels, bed linen, etc., on removal from the patient, should at once, before removal from the room, be placed in a pail or a tub of zinc solution, made in proportion as follows: Water, one gallon: sulphate of zinc, four ounces; common salt, two ounces.

15. The discharges from the throat, nose, mouth, and from the kidneys and bowels of the patient should be received into vessels containing chlorinated lime (commonly called "chloride of lime"),* or the zinc solution mentioned in paragraph 14, and in cites where sewers are used, thrown into the water closet, elsewhere the same should be buried at once at least 100 feet distant from any well, and should not by any means be thrown into a running stream, nor into a cesspool or privy, except after having been thoroughly disinfected. Discharges from the bladder and bowels may be received on old cloths, which should immediately be burned—or disinfected and buried. All vessels should be kept scrupulously clean and disinfected. Discharges from the nose, ears, etc., may be received on soft rags or pieces of cloth, which should immediately be burned.

16. If the attending physician shall think best for the patient, an effort to prevent the spreading of the contagious particles thrown off

---

*Carbolic acid in dilute form, as generally used, is not believed to be a disinfectant, and there is question of the reliability of sulphate of iron "Standard Solution No. 1," recommended by a committee of the American Public Health Association, is probably the most reliable, and is made as follows: To each gallon of soft water add four ounces of chloride of lime of the best quality, which should contain at least 25 per cent of available chloride. "Use one quart of this solution for the disinfection of each discharge from the bowels.

from the skin may be made by anointing the body with oil, vaseline, etc., as the physician may direct.

17. All cups, glasses, spoons, etc., used in the sick room, should at once on removal from the room be washed in the zinc solution mentioned in paragraph 14, and afterwards in hot water, before being used by any other person.

18. Food and drink that have been in the sick room, or otherwise infected with scarlet fever, should be destroyed or buried. It should not be put in the swill barrel.

19. Perfect cleanliness of nurses or attendants should be enjoined and secured. As the hands of nurses of necessity become frequently contaminated by the poison of the disease, a good supply of towels and basins—one containing a solution of chlorinated soda (Larraque's solution), chlorinated lime, or the disinfecting zinc solution, and another for plain soap and water—should always be at hand, and freely used.

20. Persons recovering from scarlet fever should be considered dangerous, and therefore should not attend school, church, or any public assembly, or use any public conveyance, so long as the scaling or peeling of the skin, soreness of the eyes or air-passages, or symptoms of dropsy remain. A person recovering from scarlet fever should not thus endanger the public health nor appear in public until after having taken four times, at intervals of two days, a thorough bath. The hair should be thoroughly washed. This cleansing, however, should be deferred until the physician in charge considers it prudent; and the statements in paragraph 4 should be considered.

21. The body of the person who has died of scarlet fever should be wrapped in a cloth wet with a zinc solution of double the strength stated in paragraph 14; and, with as little delay as possible, be privately buried.

22. Burial of the dead from scarlet fever should be private, and the body should not be exposed to view.

THE TREATMENT OF INFLUENZA.

We reprint from *The Medical Standard* the following suggestions as to the treatment of grippe:

There are three common varieties of influenza, or "grippe." These are (1) the respiratory, (2) the gastro-intestinal, and (3) the nervous—named according to the source of the predominating symptoms. There must, therefore, be some variation in the method of treatment, although there is one condition common to all which demands special care and watchfulness, viz., the great prostration. In practically all cases there is also severe headache and aching pains. This symptom, in the mind of the patient, often overshadows everything else. There is no specific for treating influenza. We must meet the indications as they arise, and outline our treatment according to our patient's age, strength and the character of the disease manifestations. When seen early a full dose of calomel and soda (5-10 grains each) should be given, or if the stomach is irritable the calomel may be given in small doses, as follows:

Calomel	gr. 2 to 4
Sodium bicarbonate	gr. 12
Bismuth subnitrate	gr. 24

M. Make 12 powders. Sig. One every half hour to hour until the bowels move. Follow with citrate of magnesia or a natural aperient water, as Hunyadi or Apenta.

At the outset of an attack a "sweat" is of undoubted value, helping to eliminate the toxins, relieve visceral congestion and diminish the severity of the pain. This is most simply given by seating the patient upon a cane-seated chair, or one with a perforated bottom, wrapping him thoroughly in blankets up to his neck and placing beneath the chair a vessel containing a gallon or more of very hot water. Free perspiration will usually be established in a few minutes, after which he should be placed in a bed previously warmed and given warm drinks. If the patient is weak, the same result may be accomplished by surrounding him, well covered with blankets, in bed, with hot-water bottles, bricks or flat-irons. If the patient is strong and there are no evidences of cardiac weakness, pilocarpin is a good drug at this stage. Johnson (*Medical Review*) finds that $\frac{1}{5}$ grain given with a weak whiskey toddy, with the patient wrapped in a warmed blanket, produces free diaphoresis without depression. Dover's powder in 5 or 10 grain doses is also much used for this purpose.

As we have already said, there is no specific for influenza, but the drug which is most generally useful is undoubtedly quinine. It certainly has a tonic effect, and according to Finkler, of Bonn, who made experiments upon a squadron of soldiers, it has distinct antitoxic powers. He gave it in doses of $7\frac{1}{2}$ grains in $\frac{1}{2}$ ounce of whiskey daily. It is usually given in 3 to 4 grain doses every 3 or 4 hours, variously combined with Dover's powders and other opiates and with the coal-tar antipyretics. As to the use of these the last-named class, there is great difference of opinion. Where there is profound depression they are certainly contraindicated, but as Jacobi points out, we should not forget that most of them are "also nervines, analgesics and diaphoretics, thus improving comfort and metabolism." In moderate doses for the relief of pain their use may be considered justified. Drugs of this class are acetanilid, phenacetin, antipyrin, kryofin, etc. A very valuable class of remedies are the salicylic acid compounds, including salol, sodium salicylate, salipyrin (compound of salicylic acid and antipyrin) and salophen. To obviate the depressing effect of these drugs, caffein, strychnine, spartein and camphor are given in combination with or alternately with them. Below are combinations that may be used:

Codein sulphate	gr. 6
Phenacetin	dr. 1
Salol	dr. 1

M. Divide in 12 powders. Sig. One every 3 or 4 hours.—Gould's Cyclopedia.

Quinine sulphate	gr. 36
Dover's powder	gr. 36
Camphor monobromid	gr. 12

M. Make 12 capsules. Sig. One 3 or 4 times daily.

Dover's powder	dr. ½
Salol	dr. ½
Phenacetin	dr. ½

M. Make 12 capsules. Sig. One every 2 or 3 hours.—Tyson.

or

Phenacetin	dr. ½
Salol	dr. ½
Pilocarpin	gr. 1

M. Make 12 powders. Sig. One every 2 or 3 hours.

For children, in cases of moderate severity, Sheffield prescribes:

Sodium benzoate,	gr. 1½
Salol	gr. 1½
Acetanilid	gr. 1½
Caffein	gr. ¼

M. Make one powder. Sig. One powder every 3 hours to a child 6 years old. If the pain is severe and the child is kept awake, add 1-12 grain of codein sulphate to each powder.

In cases where children refuse to take powders he prescribes the following mixture, adding codein if necessary:

Sodium benzoate Antipyrin	aa dr. ½
Ammon. sol. anise Comp. syr. squills	aa dr. 2
Sympalthea	oz. 1½
Anise water, q. s. dd	oz. 2

M. Sig. One dram every 3 hours to a child 6 years old.

He advises, also, inhalations of comp. tinct. benzoin from hot water.

In children, Johnson advises a liquid preparation containing ammonium salicylate and antipyrin.

Wilcox (*Med. News*) speaks highly of gelsemium in influenza. It should be pushed until slight ptosis appears, which is the limit of its physiological activity. A formula for its administration is given in the *Medical Summary:*

Acetanilid	dr. 1
Alcohol (enough to dissolve).	
Tinct. gelsemium	dr. ½
Syrup ginger, q. s. ad	oz. 2

M. Sig. Teaspoonful every 2 or 3 hours.

In the respiratory form of the disease the cough is often troublesome and may resist morphine and the opium derivatives. In this form Wilcox finds that ammonium carbonate in 5 to 10 grain doses, given in two ounces of milk, will relieve chest oppression, strengthen the heart and check the cough. For application to the throat and nose, sprays like the following are to be used:

Menthol	gr. 5
Eucalyptol	gr. 5
Liquid vaseline	oz. 1

M.

Steam inhalations, with turpentine, comp. tinct. benzoin, etc., are decidedly useful and comforting.

Various medicaments are used for the relief of cough. Heroin

(1-12 grain) in tablet form, codein (¼ to ½ grain), and paregoric, morphin and other opium preparations are used. Below are formulas:

Morphin sulphate	gr. ½
Syrup squill	dr. 2
Syrup lacticarium	dr. 4
Water	dr. 6

M. Sig. Teaspoonful every 2 to 4 hours.—Wilson.

Codein sulphate	gr. 4
Ammon. chlorid	dr. 5
Syr. wild cherry	oz. 2
Comp. spts. juniper, q. s. ad	oz. 4

M. Sig. Teaspoonful every 2 or 3 hovrs.

In the gastro-intestinal type we must often withdraw food, to prevent vomiting, and feed by the rectum.

Hypodermics of morphine may be required to check gastric irritability, if unrelieved by small doses of calomel and bismuth. When the stomach becomes tolerant, gastric and intestinal antiseptics, as salol, bismuth, beta- and benza-napthal, will be found useful. Liquid nourishment, as liquid peptonoids or panopepton, should be given as early as possible.

In cases where there is great depression of the nervous system, stimulants are required. Resort to alcoholics is of questionable utility, unless the patient is accustomed to their use. Strychnine sulphate or nitrate is the best stimulant, and should be given in doses of good size (1-30 to 1-20 grain) three or four times daily. Aromatic spirts of ammonia, camphor, digitalis and spartein have their uses. According to Jacobi, one of the best stimulants for children is musk. It may be given in the gravest cases, 5 to 10 minims of the ten per cent. tincture every half hour until half a dozen or a dozen doses have been taken. Camphorated oil injected hypodermically is an excellent diffusable stimulant. Another drug of considerable value to abate the nervous symptoms of the declining stage of the disease is asafetida.

BRIEF CONSIDERATIONS ON THE ETIOLOGY OF MALIGNANT GROWTHS.

By R. H. COWAN, M.D.,

Professor of Operative Surgery New York School of Clinical Medicine.

It may, I think, be reasonably questioned whether a part once injured is ever restored to its primal integrity. In the case of a severed nerve trunk, or of a broken bone which fails to unite, the resultant paralysis in the one, and deformity and loss of function in the other, is too patent to admit of discussion. In that class of injuries known as sprains and strains, where pain and more or less loss of function are so persistent as to be almost, if not quite, permanent, while the explanation of the fact may not be easy, the fact, nevertheless, remains. But it is not to loss of function from non-union, nor deformity from whatever cause, nor to fixation of a joint from plastic exudate, nor to pain persisting after sprains, that I would direct your attention. It is to the fact that nature repairs the damage done by injury with a material for the most part inferior in structure to the original tissue, and this tissue, in certain individuals, and under certain conditions, seems prone to undergo degenerative changes, and, in some cases, unquestionably assumes malignant growth.

Cohnheim explains the growth of tumors as due to overproduction of embryonal cells, a number of which fail to be utilized in the formation of normal tissues. These cells may in certain cases lie dormant through life. In others, they may at any time display great activity, often growing with great rapidity and forming new growths. The idea that tumors—benign or malignant—may follow injury, whether that injury be fracture of bone, or laceration, or severe contusion of soft tissues, or a constant irritation of torn structures, well exemplified in laceration of the cervix uteri, may, at first blush, seem opposed to the Cohnheim theory. Nature, in each instance, sets about her work of repair. We have active hyperemia, followed by exudation of nutritive plasma and white corpuscles from the capillaries. Under the stimulus of this plasma, the cellular elements of the tissues swell, increase in number by segmentation, and, in short, become ameboid cells, identical in every particular with the embryonal cells of fetal existence. And, in every injury, where, from any interference with or prolongation of the healing process, all proliferation has been excessive, a number of these cells undoubtedly remain non-utilized, and hence capable of exhibiting, under the same condition, exactly the same behavior as the embryonal cells of fetal life.

An old laceration of the cervix uteri has long been recognized as affording a favorable condition for the development of carcinoma. Nor is the explanation far to seek, if we admit what I conceive to be a proper interpretation of, or, at least, a very probable deduction from Cohnheim's teaching. The anatomical structure of the uterine neck precludes, in many cases of laceration, proper coaptation of the torn surfaces. As a consequence there is excessive cell-proliferation; and this, it is to be remembered, is constantly increased by attrition. We have, then, overproduction of adventitious tissue. Here are two raw surfaces constantly bathed in their own acrid irritating secretion. If Virchow be right, we have surely all the conditions necessary to convert this newly-formed tissue into a malignant one; and I can but believe that clinical experience is in fullest accord with these views.

It is possible, perhaps even probable, that injury will produce malignant changes only when certain favorable conditions exist, such as predisposition, either congenital or acquired. Possibly the location of the injury in different individuals may determine the result. In certain persons there seems to be a congenital predisposition to certain diseases. Perhaps this seeming predisposition may be better described as a lack of resistance. And is it not highly probable that this lack of resistance, in some dependent on hereditary weakness, may in others be acquired? In one, non-utilized embryonal cells constitute a weak point, ever ready, under sufficient provocation, to take on malignant growth. In another, a traumatism, with excessive cell proliferation, renders existent exactly the same condition. In both cases we have tissue elements especially prone to undergo atrophic degeneration, and, as a next step, malignant changes.

It is not my purpose to attempt a learned disquisition on the etiology of tumors, malignant or otherwise. Whatever influence heredity may have, whatever part germs may play in their production, carcinoma, sarcoma, and enchondroma have been so well proven, in so many cases, to follow injuries to the tissues in which these growths respectively are known to develop, that he would be, indeed, a Thomas of Thomases who could for a moment doubt that injury with its resultant cell-proliferation was, if not the *fons et origo*, at least the exciting cause of malignant growth in an already favorable subject.

As to the etiology of tumors in general, we are very much in the dark. It has been claimed that carcinoma and sarcoma are induced by micro-organisms. Again, cancer is described as due to a growth of epithelial cells out of time and out of place. Sarcoma, growing as it does in connective tissue, is developing in place, and therefore less malignant. Some, while holding to Cohnheim's theory as regards the benignant tumors, will not admit malignant growths can be produced by trauma. The theory of inheritance has its advocates and its opponents. I think these various views are not altogether irreconcilable after all. Why may not irritation, with its consequent cell-proliferation, produce the same result, whether due to injury, micro-organisms, or what not? While in one subject injury or irritation, however produced, may cause a benign growth, why should it not, from heredity or some unknown predispositioin, produce in another a malignant tumor? That degenerative or malignant changes do not occur in every case of traumatism where tissues have been broken, or where from inflammatory action cell-proliferation has taken place—in fine, wherever new tissue has been supplied--by no means militates against my assertion that restoration of a part to its primal condition is impossible. The presence of new tissue makes the difference; and in the present state of our knowledge we cannot decide in what case or what situation it may one day give trouble. At all events, be it remembered that an ounce of prevention is worth a pound of cure. Repair at once the lacerated cervix, avoid in operations rough handling of tissues, make clean cuts and carefully unite severed structures; in short, by close approximation of parts, neat and careful work and rigid asepsis, reduce to a minimum overproduction of new tissue.—*International Journal of Surgery.*

NITRIC ACID FOR GONORRHEA.

This remedy has proved useful in the treatment of gonorrhea in the hands of Dr. Moriz Popper, of Budapest. He used it in the strength of 1 part of acid in 300 parts of water to 1 in 400. The injections are absolutely painless and are repeated four to five times daily. In one or two days the discharge becomes less in amount, the urine clears, and in two or three weeks a complete cure is effected. Where the gonorrheal process has extended into the posterior part of the urethra the author makes once daily a steep injection with a concentrated solution of the acid ($\frac{1}{2}$, 1, or even 2 per cent.). The author ascribes the good effects of the nitric acid to its property of coagulating albumin, and considers it superior to silver nitrate.—*Merck's Archives.*

A CASE OF CHRONIC RHEUMATISM.

By L. B. SMITH, M.D., Hornellsville, N. Y.

Six years ago I had synovitis of the right knee joint following an injury from which I was confined to the house for several weeks, but finally recovered with slight stiffness. In January, 1897, the same knee began to enlarge, which gradually increased until it was at least half as large again as normal. Before this time arrived, the left knee, left ankle, left wrist, right elbow and right jaw became affected, the latter becoming so bad until I could not place a teaspoonful of food between my teeth. I sat in a wheeled-chair for twelve weeks, during which time I lost flesh and appetite, while sleep was almost out of the question, excepting at short intervals. Before these conditions appeared, my urine was loaded with uric acid, and despite all remedies and treatment, could not get rid of it. Being a physician myself, in practice since 1875, I tried everything known to me, and a great many remedies recommended by my brother physicians, but the conditions remained the same, gradually becoming worse. In October, 1898, I was forced to quit work, and went into the Steuben Sanitarium, where I commenced the use of baths, electricity and massage, as well as medicines, following the same for several weeks. While I improved in some respects, the uric acid condition remained the same. When I commenced to take thialion, my strength was almost gone, and to all appearances I was booked for another world. One day, Dr. Walker, superintendent of the sanitarium, called my attention to an article published in a medical journal, calling attention to the use of thialion in chronic rheumatism, and as it did not bear any symptoms of being a fake preparation, I told him to get me some that I might try it, as I knew of no better subject to experiment on than a doctor. In forty-eight hours my urine was alkaline, an almost inconceivable result. After a few days I only took one dose a day, viz., a teaspoonful in half a glass of hot water, and I just balanced the urine from slight acid in the morning to slight alkaline at night. In a short time my joints began to decrease in size, and I continued to improve. In July, 1899, I went up in the Catskill Mountains, remaining for six weeks for my general health, which did me worlds of good, and I returned to my home on September 1, a new man. I then commenced my practice again, and have continued to improve, until now I as as well as ever, except a little stiffness of the right knee, which is steadily improving. I still take a little thialion occasionally, as a preventative, as I have had all the uric acid deposits I want in my joints. I weigh now within five pounds of as much as I did before this attack. I never had rheumatism before, and do not expect to have it again. I have used thialion in many cases since, in my practice, with equally good results, sometimes varying the treatment to meet the conditions of the patient. One mistake in all such cases, is that they do not take the medicine long enough, for it has to remove the deposits through the blood, by the alkalinity mentioned. Thialion certainly did for me what no other remedy did (I took everything else, lithia in all other forms gave no results whatever, before taking this preparation). As this is put up only for physicians' prescriptions, I can most certainly recommend it to their use.

MERCURY-ETHYLENEDIAMINE, 10 PER CENT. SOLUTION, SCHERING.

An Efficient Disinfectant for the Hands, Non-irritating and Absolutely Innocuous to the Skin.

This is at present placed on the market only in solution, containing 10 per cent. of mercuric citrate. According to Drs. Krönig and Blumberg, mercury-ethylenediamine in the strength of 3:1000, made by the addition of 30 grams (1 ounce) of the solution to 970 grams (1 quart) of water, is excellent for the disinfection of the hands. Professor Sænger holds, however, that a concentration of 1:1000 (10 grams = 2½ drams) of the solution to 990 grams (say 1 quart of water), is sufficiently strong.

Drs. Schenk and Zaufal performed a series of experiments upon their hands in order to determine the effect of various methods of rendering them aseptic. Vigorous washing with sand soap was practically useless; after thirty minutes' hard rubbing the enormous number of 122 colonies per square cm. could be counted, in fact the prolonged rubbing seemed to bring the micro-organisms to the surface in even greater numbers. Even less satisfactory results were obtained by vigorous rubbing with a sterile brush and sterile soap. A series of experiments were also made with the mercurial ethylenediamine solution of Kroenig. This consists of 4 grams of ethylenediamine, 10 grams of citrate of mercury, and 86 grams of water. For the hands the solution can be diluted from 1 to 30 up to 1 to 200. Fragments of skin which had been previously washed with sand soap and then treated with this solution, were excised just before operation, and these remained perfectly sterile for long periods. The hands were almost invariably perfectly sterilized. They conclude that the most perfect method of stirilizing the hands or skin is to wash the hands for five minutes with sand soap, then three minutes' immersion in the above-mentioned solution, which should be as hot as can be borne.—Abstract from the *Münchener Medicinische Wochenschrift*, November 6, 1900, in *Philadelphia Medical Journal*, February 9, 1901.

ETHYLENEDIAMINE, 10 PER CENT. SOLUTION, SCHERING.

A Solvent of Albumin and Pus Corpuscles.

The ethylenediamine, $C_2H_4<\genfrac{}{}{0pt}{}{NH_2}{NH_2}$, used in the preparation of argentamine and kresamin (ethylenediamine trikresol) is a clear, colorless liquid, of specific gravity 0.97. It is easily soluble in water, strongly alkaline in its reaction and possesses an ammoniacal odor. Ethylenediamine is not escharotic or corrosive, but extremely mild, when it is pure as in Schering's preparation.

While experimenting at the Schering laboratories, to test the action of this product, it was found that this agent dissolves albumin very easily, even when boiled.

Dr. Jean Schäffer, assistant at the Dermatological Clinic of the

University of Breslau, proved that ethylenediamine, a clear fluid, possessed the property of clearing up the precipitates of chloride of silver and albuminate of silver that appeared in salt solutions, hydrocele fluid, and blood serum to which nitrate of silver had been added. Clotted blood was rendered glassy and transparent, and pus cells were entirely dissolved by the reagent.

Then, comparing the tissue-penetrating action of solutions of nitrate of silver and of ethylenediamine-silver of equal strengths, he found that the latter was many times greater. Cubes of perfectly fresh liver of definite size were immersed in the solutions; and macroscopic sections clearly showed that the penetrating power of the new salt was at least five times as great as the nitrate. Microscopic sections, as shown in the microphotograms, revealed this still more clearly. The silver was deposited in the ditrate specimens in a narrow and distinct band; in the ethylenediamine specimens it was deposited in a broad zone that occupied the greater part of the cube, and extending irregularly along the masses of liver cells toward the center.

SOME SUGGESTIONS ON THE MANNER OF USING PROTARGOL.

Having passed the experimental stage, it may now be safely asserted, on the ground of the remarkably extensive literature published, that protargol is one of the most important additions to the materia medica of recent years. Aside from its general use in the treatment of gonnorrheal affections it has to a great extent displaced nitrate of silver in diseases of the eye, ear, nose, and throat. To obtain uniformly good results attention has been lately drawn to the importance of exercising proper care in making the solutions, a point which has been especially emphasized by Professor Neisser. A clear and satisfactory solution can be secured in any one of the following ways: Stir the protargol powder into a thick and smooth paste with a little cold water, and then add the bulk of the fluid. This should be done in a glass or china vessel, using a glass rod; if in a mortar, the latter as well as the pestle should be slightly moistened with a few drops of glycerine. Protargol may also be readily dissolved by dusting the powder evenly upon the surface of the water and allowing the fluid to stand without stirring for about ten minutes. It is very essential that only cold water should be used in making the solutions, as with warm water the drug is to some extent decomposed, and then becomes less active and may cause irritation; for the same reason the solutions should be preserved in dark colored yellow bottles. In acute gonorrhea the average strength of the solutions ranges from one to ten grains to the ounce; in chronic urethritis, up to thirty grains; in diseases of the eyes, ears, nose and throat, ten to sixty grains; as an application to wounds and ulcers, one to two per cent. solutions and five per cent. ointments are in use. Unlike nitrate of silver, protargol does not stain the skin even in concentrated solution. The solutions commonly employed in gonorrhea also do not produce stains of the clothing, or if they do, only cause slight discoloration, which can be easily removed with warm soap water. The much stronger solutions of twenty to fifty per cent.

sometimes leave behind brownish-yellow stains on the clothing; if recent, they can be removed with soda and ammonia; if old, by the action of peroxide of hydrogen in the presence of ammonia.

EARLY SYMPTOMS OF TUBERCULOSIS.

Bozzolo (*Lancet*) calls attention to the following signs which point toward the existence of tuberculosis in the earliest stages: (1) Albuminuria, alternating with phosphaturia; (2) a pseudo-chlorosis, distinguishable from true chlorosis by the slighter degree of reduction of the hemoglobin and by the less marked vascular and cardiac disturbances—palpitation, soft pulse, pulsating arteries, etc.; (3) the presence of gastric disturbances like gastralgia, anorexia, nausea, and vomiting; (4) tachycardia in absence of fever; (5) diminution of blood pressure; (6) a rise of temperature following bodily or mental exertion above the slight rise proper to health; in women a rise of from 0.3 degrees to 0.4 degrees C. is observable before the onset of each menstrual period (7) an undue tendency to sweat after exertion, mental or bodily, also night sweats; (8) pain in the supra-orbital regions and in the neck; (9) a slight inequality of the pupils, with a tendency to dilation; (10) the occurrence of herpes zoster; (11) enlargement of the spleen. The first seven symptoms mentioned are most frequently found, and are of the greatest diagnostic value.—*Modern Medicine.*

THE ROLE OF PETROLEUM IN THERAPEUTICS AND WHY IT IS PRESCRIBED.

Synopsis of Research Experiments Made by G. Burbidge White, M.D., Diplomate State Medicine, University Dublin, F.R.C.S.I., et cetera.

Petroleum has of late become a most popular remedy; it is a comparatively new drug, and not much information has been forthcoming respecting its therapeutic action. That which has been available has been somewhat confused and misleading. I may be able to throw some light on the subject by the brief remarks which follow:

The name, Oil of Petroleum, may convey the idea to the average medical reader that it is a fluid fat having all the characteristics of a fat and behaving like one when swallowed and subjected to digestive action, and the most likely fat for it to be confounded with is the well-known cod-liver oil. This error may be accentuated by the fact that both substances are to be found in the form of emulsion, about the same strength, and it is frequently stated that petroleum is a substitute for cod-liver oil. If we examine the chemical and physical characters of these two substances, we ought not to again confound them. Cod-liver oil is a true fat, consisting chiefly of olein, containing an active principle termed morrhuol and traces of I. Br. with Phosphates, etc. It behaves like a fat when digested, being emulsified, partly saponified, absorbed to be assimilated, and enters into the body metabolism, the great objection to its use being that while undergoing digestion the fatty acids are set free and cause the usual eructations; also its smell produces nausea. It is not a good vehicle, as it soon becomes rancid. Furthermore, it offers concentrated nourishment for bacteria, and therefore serves as a culture medium for the growth and multiplication of micro-organisms, thus producing gastric and intestinal fermentation and auto-intoxication from absorption of toxines from the intestinal tract. Petroleum, the absolutely pure residue after complete purification of the crude substance, is a fluid hydro-carbon, not a fat or oil. It is devoid of chemical substances or salts in solution, cannot be digested nor assimilated, nor can it enter the body metabolism. It is unchangeable, organisms will not grow in it, and it does not become rancid. Therein lies its superiority as a vehicle over perhaps any other substance used for this purpose. That it is capable of producing great clinical benefit cannot be denied. I now proceed to point out how it acts:

Besides acting as an ideal vehicle, petroleum rivals belladonna in its numerous applications and therapeutic actions. It has been largely recorded of it that it increases weight, relieves dyspepsia, flatulence and constipation without aperients, diminishes cough, catarrh of the mucous membranes of the respiratory, intestinal and genito-urinary tracts.

In some experiments I made with Angier's Petroleum Emulsion upon digestion and absorption I satisfied myself of the following effects. I found that certain proportions of the emulsion rendered peptones and fats (chyle) more miscible and diffusible, and that a quicker and more complete absorption of the weight-giving nutrients took place in a given time under its influence. This effect was enhanced by solution of thick impure mucus covering the wall of the bowel, while increased peristaltic action favored digestion, and also presented constantly new and fresh portions of the finished products of digestion and absorption, while as additional action it was proved that the emulsion is a perfect intestinal antiseptic, inasmuch as it completely inhibited the growth and action of putrefactive bacteria such as inhabit the alimentary canal. Peptic and tryptic digestion was hastened and rendered more complete.

The well-known clinical fact that Angier's Petroleum Emulsion favors natural bowel movements, even in cases of chronic constipation, was proven in my experiments to be due to the fact that petroleum acts as a well distributed lubricant to the intestinal mucous membranes, and induces natural, mild peristalsis which persists for several hours after the death of the animal.

To put the matter shortly, petroleum properly purified and prepared, is a substance that renders the digestion of all classes of food stuffs—albuminoids, carbohydrates and fats—more thorough than occurs without petroleum, and favors the complete absorption of the finished products of digestion into the system. It thus acts as a true nutrient, providing the tissues with exactly the character of material required to repair waste, and by thus maintaining normal nutrition it antagonizes the progress of morbid processes, such as tuberculosis, scrofula, inanition, marasmus, etc. Furthermore, Angier's Petroleum Emulsion was found by actual experiments to exert a more promptly beneficial influence upon inflammatory conditions of the respiratory tract than any combinations of expectorants and cough sedatives. It exerts this influence without inducing gastric disturbances of any kind; indeed, it was noted that these disturbances, when present as a complication of the disease, were invariably overcome, and the processes of digestion reinforced to a most pronounced extent. In pulmonary tuberculosis, and in both acute and chronic bronchitis, not only was the cough rendered less severe and less frequent, but expectoration of retained secretions was easy and free from effort on the part of the patient. The symptoms of catarrh of the respiratory organs promptly disappeared, and proved that Angier's Petroleum Emulsion has a *selective action upon the larynx bronchi and pulmonary alveoli.* In all cases the disappearance of the local symptoms was accompanied by improvement in nutrition, manifested by increase of appetite, ability to digest and assimilate food, and a rapid and progressive increase in body weight.

THERAPEUTIC HINTS.

UNNA'S OINTMENT IN RINGWORM OF THE SCALP.—In the *Post-Graduate*, xv, p. 1009, Dr. T. G. Lusk, of the New York Post-Graduate Medical School and Hospital, gives credit to Unna's ointment for the quickest results in cases of ringworm of the scalp, consisting of

Chrysarobin	5 parts
Ichthyol	3 parts
Salicylic acid	2 parts
Petrolatum	to 100 parts

The ointment is to be rubbed in, spreading of the inflammation to the conjunctiva and to the face being prevented by an oiled-silk cap to the head. A soothing ointment is to follow this strong application after two or three days.—*Med. Age.*

CONSTIPATION IN CHILDREN.—A most effective remedy is the following:

℞	Pulv. rhei	gr. xxiiss	1.50
	Pulv. ipecac	gr. iv	.25
	Sodii bicarb	gr. lx	4.00
	Syr. simp	℥ iv	128.00

M. Sig: Teaspoonful every three hours.—*The Therapist.*

After about two thousand experiments on animals, English investigators have decided that dilute hydrocyanic acid is the quickest and most efficient antidote to chloroform poisoning. A full dose should be dropped from a drop-tube on the back of the tongue.—*Journal of Med. & Science.*

℞	Trional	ʒii	8.00
	Ol. amygdal. dulc	℥i	32.00
	Gum. acac	ʒiv	16 00
	Syrup tolutan	℥i	32.00
	Aquæ aurent, concent	ʒiv	16.00
	Aquæ pur. q. s. ad	℥iv	128.00

M. Ft. emulsion. In divided doses.

Given in this way the hypnotic effect is as pronounced, and far more readily obtained, than in the present method of administering the drug.—*Jaournal Am. Med. Assoc.*

A LOTION FOR TINEA FAVOSA.—The following has proved very serviceable:

℞ Sodium hyposulphite	1½ ounce
Dilute sulphuric acid	2 drachms
Water	to 8 ounces

M.—*N. Y. Med. Journal.*

TREATMENT OF ACUTE CATARRHAL TONSILITIS.—Saline purge at the onset, and then the spraying or brushing of the tonsils or pharynx every hour, with a solution of the following:

℞ Formalin	♏ xv-xx
Potass. chlor	ʒi
Liq. ferri. chlor	ʒi
Aquæ menthæ pip. q.s. ad	℥iv

M. Sig: Use a spray.—*Abraham. Journal Am. Med. Assoc.*

REBELLIOUS INTERMITTENT FEVER.—

℞ Quininæ sulphat	4. gm.
Ferro. potass. tartrat	10. gm.
Acid. arseniosi	0.10 cgm.
Aquæ distil	300. gm.

M. Sig: The day following the attack a dessertspoonful of this solution is given every hour; the following day every three hours, and so on.—*Baccelli.*

ECZEMA IN CHILDREN.—The rebellious nature of moist eczema in children is well known. It appears that pyrogallic acid acts almost specifically applied in the form of ointment from 1 to 2 per cent. No trouble occurs from the treatment which is well supported, and never has it proved at that percentage dark-colored urine. Relapse of the eczema is very rare.—*Paris Cor. Med. Press and Circular.*

EARLY COUGH AND FEVER IN PNEUMONIA.—

℞ Potassium citrate	6 dr.
Spirit nitrous ether	4 dr.
Camphorated tinct. opium	4 dr.
Solut. potassium citrate	to make 6 oz.

Dessertspoonful every three hours.

—*Hughes, St. Louis Clinique.*

TEMPERATURE AS A SIGN OF UNSUCCESSFUL NURSING IN THE INFANT.—During the first four or five days the most important sign of insufficient food is a raise of temperature. "inanition fever," so-called. The range may be from 101 degrees to 102 degrees F., or, in extreme cases, from 104 degrees to 106 degrees F. If no obvious symptoms of illness are present, such a temperature before the fifth day may be regarded as due to inadequate nursing.—*Sajous' Annual and Analytical Cyclopaedia of Practical Medicine*, vol v., p. 219.

A SYRUP FOR CONSUMPTIVES.—Dr. Schoepp proposed, several years ago, the following formula for a combination of calcium superphosphate with balsam of Peru and creasote, which has been found very useful for the treatment of consumptives:

℞ Calcium phos	gr. lx
Aqua dest	℥ij
Hydrochloric acid	♏ 75-95

Mix the phosphate with the water and add sufficient acid to dissove it. Then in the proper manner—

Balsam Peru	♏xxx
Gum arabic	gr. xxx
Creosote	♏xv
Syrup	q.s. ℥iij

The maximum dose of this syrup is a tablespoonful three times a day, but it is advisable to begin on less, say a teaspoonful.—*Med. Summary.*

For Ovarian Neuralgia.—The following pill has proved of great service:

℞ Camphor monobromide	1½ grains
Powdered capsicum	2 grains
Confection of roses	enough to make 1 pill

—*N. Y. Med. Journal.*

THE TREATMENT OF ECZEMA.

The present trend of opinion among dermatologists seems to be to look upon eczema as a disease of parasitic origin due to the morococcus of Unna, yet all agree that another factor is necessary before the disease can arise—such as a break in the skin, a pre-existing irritation, chemical, medicinal or traumatic, dryness and harshness of the epidermis, disordered innervation due to gout or rheumatism, or, in short, anything which changes the trophic condition of the derma.

The concensus as to the treatment of infantile eczema is that the diet should be carefully regulated, drugs given like sodium bicarbonate, calcined magnesia, calomel and benzo-naphthol, or bismuth salicylate if there is looseness, that exert an influence on the stomach and intestines and counteract toxemia, and that the local treatment should above all be mild and of a sedative and antiseptic nature. The remedy which seems to receive general sanction is resorcin generally combined with sulphur in an ointment: Resorcin, 1.00 (or .50); sulphur, 0.50 to 2; lanolin, 8; lard ad 32.

In eczema of the genito-anal region and in that of the groin, Allen praises a 3 per cent. aqueous solution of methyline-blue. In seborrheal eczema an ointment of resorcin 0.50 to 1; acidi salicylici, 0.2 to 0.66 to lanoline, 8; lard ad 32.

To remove the crusts in the impetigenous form, oil, soft soap and boric acid solutions are best.

In the persistent chronic forms in older children and adults the following formula will be found a good one: Resorcin, 1 part; tar, 2 parts.; prepared zinc carbonate, 10 parts; zinc oxide, 10 parts; lanolin, 50 parts; lard ad 100 parts.

In cases of eczema which have an underlying cause in the gouty or rheumatic dyscrosia, appropriate remedies should be administered. In the oozing type of eczema Hirschborn has obtained excellent results from naphthalin used as a dusting powder.

In chronic eczema of the hands and soles of the hard, thickened, fissured type, the cure is slow. Jamieson first softens the parts with starch poultices with which some boric acid is incorporated and repeated every four to six hours. After each removal of the poultice the hands are rubbed thoroughly dry with a rough but soft dry rag, which removes the sodden, unhealthy epidermis. In four or five days the palms are soft and smooth, pliable and pinkish. The poulticing is now stopped and an ointment made up of 5 to 30 grains of oxidized pyrogallol, a half-ounce of lanolin, and 2 drachms each of oil of almonds and distilled water is to be rubbed in thoroughly, but using it sparingly. After the cure, bland soaps only should be used and daily frictions with a towel and cold water. Picric acid in saturated aqueous solution is a good remedy in the weeping form to be used after removal of the crusts, but it should not be used over large areas lest it be absorbed in dangerous amount. It is applied on cotton pledgets and bound on, and the dressing is changed every one or two days.—*Journal of Medicine & Science.*

TREATMENT OF ACUTE BRONCHO-PNEUMONIA OF CHILDHOOD.

Among the directions given by Carrière for the treatment of this disease are the following: I. Prophylactic measures, indicated in the course of infectious maladies which are often followed by broncho-pneumonia, are : (1) To isolate the patient as much as possible; (2) to avoid chills; (3) to place the patient in a chamber which can be aired as much as possible; (4) to make the air which the patient breathes aseptic by antiseptic vapors, the following solution may be used:

℞	Phenol	20 gm.
	Thymol	10 gm.
	Benzoin	10 gm.
	Alcohol	100 gm.
	Water	860 gm.

(5) to make the respiratory tract aseptic: (*a*) By nasal instillations of mentholated oil, (*b*) by irrigations of the mouth by boric acid; (6) to care for the skin which can be the port of entry for infectious germs; (7) to care for the intestine (calomel); (8) to stimulate the organism (tonics, alcohol, baths). II. When the disease sets in: (1) The patient should be kept in bed, but should not be too heavily covered. The chamber should be well aired without chilling the child. The child's position should be often changed. (2) Alimentation: A glass of milk should be given every two hours; bouillon or beef-juice to children over eighteen months. Abundant fluid should be given. (3) The congestion of the lungs should be relieved. (4) The organism should be stimulated by baths and medication. (5) Antisepsis of the organism should be secured. (6) The emunctories of the body should be carefully looked after. (7) Complications must be treated as they arise. III. When the stage of convalescence is reached, vigilance in the care of the child must not be relaxed until complete recovery supervenes.—*Le Nord Medical—Medical Record.*

BOOK REVIEWS.

DAVIS' OBSTETRIC AND GYNECOLOGIC NURSING.

OBSTETRIC AND GYNECOLOGIC NURSING. By E. P. Davis, A.M., M.D., Professor of Obstetrics in Jefferson Medical College and Philadelphia Polyclinic. 12mo, volume of 402 pages, fully illustrated. Philadelphia and London: W. B. Saunders & Co., 1901. Price, $1.75 net.

This volume is designed to furnish instruction as to the various duties of the obstetric and gynecologic nurse. Obstetric nursing demands some knowledge of natural pregnancy, and of the signs of accidents and diseases which may occur during pregnancy. It also requires knowledge and experience in the care of the patient during the labor and her complete recovery, with the needs of her child. The obstetric nurse must also know how to help patient and doctor in the accidents and complications of labor, and has an important part to play in caring for mother and child in the diseases which occasionally attack them during the puerperal period. Gynecologic nursing requires special instruction and training, and a thorough knowledge and drill in asepsis and antisepsis are absolutely indispensable.

SAUNDERS' AMERICAN YEAR-BOOK.

THE AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY FOR 1901. A Yearly Digest of Scientific Progress and Authoritative Opinion in all branches of Medicine and Surgery, drawn from journals, monographs, and text-books, of the leading American and foreign authors and investigators. Arranged with critical editorial comments, by eminent American specialists. In two volumes—Volume I, including General Medicine, Octavo, 681 pages, illustrated; Volume II, General Surgery, Octavo, 610 pages, illustrated. Philadelphia and London: W. B. Saunders & Co., 1901. Per volume: Cloth, $3.00 net; Half Morocco, $3.75 net.

The issue of the Year-Book for 1900 in two volumes met with such general approval from the profession that the publishers decided to follow the same plan with the Year-Book for 1901. This arrangement has a two-fold advantage. To the physician who uses the entire book, it offers an increased amount of matter in the most convenient form for easy consultation, and without any increase in price; while specialists and others who want either the medical or the surgical section alone, secure the complete consideration of their branch at a nominal sum, without the necessity of purchasing considerable material for which they have no special use.

GAILLARD'S MEDICAL JOURNAL.

A MONTHLY JOURNAL OF MEDICINE AND SURGERY

Scientia et Veritas Sine Timore.

PUBLISHED BY THE NEW YORK MEDICAL PUBLISHING CO.,
116 Nassau Street, NEW YORK.

All communications, of either business or editorial character, should be addressed to Gaillard's Medical Journal, 116 Nassau St., New York.

Articles for publication will be received with the understanding that they are contributed exclusively to this journal. Reprints will be furnished at actual cost, orders for which should accompany the manuscript. Authors of accepted articles may receive twelve copies of the issue in which they are published. Necessary illustrations will be furnished without expense to authors when suitable drawings or photographs are furnished.

EDITORIAL.

We have it on the authority of the *New York Medical Journal* that there has recently been introduced in the Wisconsin Legislature a bill providing for the formation of a State Board of Osteopathy. The aim of the Osteopaths in attempting to secure the passage of such an act is to acquire the right to practice osteopathy—whatever that may be—without having to satisfy the requirements of the Board of Medical Examiners.

It is to be hoped, and confidently expected, that the representatives of the good people of Wisconsin will not permit the passage of any such act.

The profession feels that it is not worth its while and that at the same time it is somewhat beneath its dignity to take any cognizance whatever of the fakirs who under different names and in various guises offer themselves to a trusting public as the very latest thing in cures. And this is no doubt true. The life of most of these delusions is ephemeral and they die out more completely and more quickly if let alone. For opposition, in less than a paralyzing dose, is a stimulant.

But when it comes to such a pass that one of these quack systems has the temerity in the full light of day to ask for State recognition it is time for the honest gentlemen of the profession to make their protest heard.

No doubt the medical societies of Wisconsin have done so. It does seem strange that at the end of the enlightened century and at the beginning of one in which it is to be hoped that knowledge will not retrograde, any large number of people should be found willing to entrust themselves in sickness to men on the face of things unprepared to recognize what the trouble is. It is all very well to say with Commodore Vanderbilt, "The public is a —— fool," and to hope that this like its other follies may have its day and cease to be. Does not some responsibility for the education of the public rest with the profession?

The average layman does not comprehend at all the relation of diagnosis to successful treatment nor yet the necessity of training and experience for the power to make a diagnosis. The attitude of the physician toward his patient has been from time immemorial: "My dear fellow, place yourself entirely in my hands. I am the doctor. Here is something (in Latin—mysterious) to cure you. Don't worry, I'll see you to-morrow." And the layman does not understand that his good physician sees a dozen untoward courses that his disease may take, and that he stands by, watchful, to avert them if possible.

For he does not know, and who can blame him, that medicine does not consist in the administration of drugs.

Homœopathy, in its lingering tenth dilution, still fogs the eyes of many of the people. But it has performed one good office. It has greatly helped to clear the mind of the profession as to the comparative inefficacy of remedies it used to trust. May it not be that from the Christian Scientist and the Osteopath there is a grain or so of wisdom to be won?

Let us tell the public as often as we can that it is the function of the physician to act as watchman, and sometimes when it is necessary for the safety and comfort of his patient's life, to interfere with medicine or the knife. That it is the ability to recognize the time of that necessity that the State vouches for in the holder of its license to practice medicine. Meanwhile it is the duty of the profession to the public and itself to use every effort toward the establishment everywhere of a uniform prerequisite to the giving of advice to the sick, and that the right to practice medicine be withheld from those ignorant of anatomy, physiology and pathology in its widest sense. Then if a man trained in the recognition and knowledge of disease be willing to prostitute his powers in the pursuit of any ism or pathy, let him go. Perhaps some day we shall have accredited psycho therapeutists in a larger field—who can tell? But let them be graduates in medicine first, In the *Boston Medical and Surgical Journal* for December 6, 1900, F. D. Donohue reports a case of placenta previa for which a Cæsarean section was done after recurring hemorrhage, with the happy result that both mother and child did well. The author says that placenta previa is one of the most fatal conditions with which the obstetrician has to deal, and in modern obstetrical practice shows a death rate, both fetal and maternal, greater than that of any other complication. The author cites Lawson Tail as advising the removal of the uterus as the only safe method of treating this condition and as dismissing the induction of premature labor before the seventh month, because it involves the certain destruction of the child's life.

He says that manual dilatation followed by version, the method commonly advised by English and American obstetricians, has shown a steadily decreasing mortality, this lowered mortality having been obtained at the expense of the fetus, and finds justification for Cæsarean section in the success which he says has attended this operation in the saving the lifes of both mother and child. He gives as indications for operation, complete placenta previa, particularly in primiparæ, or those with rigid os, contracted pelvis or malpositions.

During recent years, and especially during the last year, the number of reports of Cæsarean section done for various causes has been very largely increased. Most of the cases reported have terminated favorably, so far as the life of the mother was concerned, at any rate. How many unsuccessful and unreported cases have occurred no one can tell, but from what we know of the mortality of the operation it is fair to assume more than a few.

Cæsarean section is a major operation in the fullest sense of the word. It is a procedure directly involving two lives, and its performance is often the observed of all observers. It has many things pertaining to it that are calculated to endear it to the heart of one who longs to add surgical laurels to his obstetric brow. That it has its absolute indications we do not doubt. That there have existed conditions in which its performance offered the only chance to the mother and in which the child was also saved without increasing her risk must be admitted. But such cases do not make up the list of all Cæsarean sections done at present.

The fact that two lives are at stake in many of these obstetric complications should not cause us to squint at the mother. Which life is the more valuable? That of a woman, grown to maturity, married, let us hope, perhaps the mother of children living, or the life of a fetus in utero. On the one hand, we have a woman, of varying but assured usefulness to the community, to her family, to herself; on the other, a possibility with the odds against it. A monster, perhaps, an imbecile, one of the forty per cent. of children who die before the fifth year, a criminal, or a failure.

Is it right to subject the mother to much risk? Is she not entitled to paramount consideration? Certainly as to placenta previa, we think our readers will prefer to be conservative for the mother and empty the uterus as soon as a diagnosis is made.

CONDITIONS SIMULATING APPENDICITIS AND PERI-APPENDICULAR INFLAMMATION.—Janeway (*New York Medical Journal*) describes the different lesions which may be mistaken for appendicitis, and mentions neuralgia as one of the troubles. The cases in this category relate to those neuralgias whose origin is obscure and cannot be referred to any abnormal condition of any organ. There are neuralgic pains reflected from above, as in pneumonia and pleurisy. Another source of difficulty in diagnosis is afforded by the condition of the right kidney. Among these conditions may be mentioned renal colic, when somewhat protracted, and especially when accompanied with fever. Still greater trouble has been occasioned by hydronephrosis, for in this trouble there is a swelling on the right side, with some tension of the abdominal muscles. Intermittent hydronephrosis, hydronephrosis with a displaced kidney, and a movable kidney, may be mistaken for appendicitis. Among the intestinal sources of error in diagnosis are ulcers of a comparatively latent course, gastro-intestinal catarrh with colic. Tubercular ulcers, with tuberculous peritonitis, over and about the cecum may give rise to very great difficulty in diagnosis. Fecal impaction may at times simulate peri-appendicular inflammation. There is a class of cases in which there exists an ulcer or narrowing, non-malignant, of the hepatic flexure of the colon, which may be accompanied from time to time by accumulations of feces in the cecum and colon. These patients have occasional fever also. These combined events may give rise to considerable trouble in diagnosis. The pain and tenderness accompanying certain cases of typhoid have led to an operation for appendicitis, as have also the general pains of follicular tonsillitis. As other troubles which may cause errors in diagnosis may be mentioned abscess of the ovary, salpingitis, retained menstrual fluid, retroperitoneal abscess, and at times hypochondriasis.—*The Chicago Clinic.*

GAILLARD'S MEDICAL JOURNAL.

VOL. LXXIV. NEW YORK, APRIL, 1901. No. 4.

NON-SURGICAL TREATMENT OF FIBROID TUMORS OF THE UTERUS.*

By AUGUSTIN H. GOELET, M.D.,

Professor of Gynecology. New York School of Clinical Medicine; Consulting
Professor of Gynecological Electro-Therapeutics, International
Correspondence Schools, Scranton, Pa.; etc.

The question often arises—What may be done for uterine fibroids where operation for their removal is not feasible or is refused, and in what class of cases will non-surgical treatment be attended by results that would justify its adoption? These are problems that not infrequently confront the general practitioner, and he is expected to decide the question in the interest of his patient, without much to guide him. He should therefore be correctly informed upon these issues.

Unfortunately the truth has been overshadowed by the strenuous efforts to establish firmly the feasibility and comparative safety of radical measures in these conditions, and non-surgical treatment has been made to appear incompetent. Likewise the indiscriminate application of electricity to fibroid conditions, both where it was appropriate and where it was not, led to failures that have operated seriously against it. There is much to be said in favor of both methods, and there are cases where the indication for each is sharply defined. This then is the point at issue—When is surgical intervention positively indicated and when may non-surgical methods be adopted with any promise of success?

Pedunculated fibroids both subperitoneal and submucous never yield to non-surgical measures, and they should be removed when discovered. The same may be said of interstitial growths that have attained sufficient size to cause the uterus to rise in the abdomen above the umbilicus. Fibro-cystic tumors are another class that demand removal since conservative methods are of no avail.

It is true that much may be done to relieve the pain of large interstitial growths when their removal is not practicable. The relief thus obtained may be only temporary, yet it adds greatly to the comfort of the patient, and should be advised when extirpation is out of the question.

The class of tumors where non-surgical treatment may be expected to accomplish satisfactory results and is therefore advisable, are both fibrous and myomatous growths of the interstitial variety, that have not attained sufficient size to cause the uterus to rise above the umbilicus. The smaller the growth the better the chance of obtaining success with this plan of treatment. Hence the question often arises—Should these growths be attacked when they are first discovered, or should they be disregarded if they are not producing inconvenience? Growths of this character are often discovered when they are producing no symptoms, and unfortunately it has been the custom to disregard them.

---

*Read before the Section on Diseases of Women at the third Pan-American Medical Congress at Havana, Cuba, February 4 to 7, 1901.

My observations, which have been by no means limited, have led me to decide in favor of active measures for the arrest of these growths and their possible dissipation whenever they are detected, and when they are small, even if they are causing no inconvenience.

First—Because they continue to grow (though slowly in some instances) if nothing is done, even under the most favorable conditions.

Second—Because the treatment, if properly carried out by one competent to employ it, cannot possibly be productive of any harm, but on the contrary, if it avails nothing more, brings about a condition that will facilitate extirpation of the growth should it subsequently become necessary.

It is urged therefore that the patient be given the benefit of non-surgical treatment in those cases of fibroid growths of the uterus where unprejudiced observers have decided that there is a reasonable promise of success.

It must be borne in mind that fibroids are not infrequently found where, either because of some constitutional defect operation for their removal would not be safe, or the patient may positively refuse to consent to the operation, yet they are producing serious inconvenience. In these cases it would be most unwise to refuse to give them the benefit of treatment that would certainly palliate the symptoms and possibly relieve them, even though such relief may not be permanent. In such cases, therefore, non-surgical treatment is to be regarded as a necessary alternative, and should not be withheld.

Foremost among non-surgical measures for fibroid tumors of the uterus is electricity. Both the galvanic and the faradic current and even static electricity may be employed with benefit.

It is the electrolytic action of the galvanic current that is relied upon mainly to reduce the size of the growth, and cause its dissipation, and when it fails to accomplish this result it is a material aid in relieving the symptoms, particularly pain produced by pressure and congestion. It also stimulates absorption of exudates, and removes many of the adhesions, this latter result being accomplished by shrinkage of the mass from contact with adjacent structures to which it has become adherent and consequent stretching and giving way of the adhesions.

Despite assertions to the contrary, electricity per se does not produce adhesions. Employed incompetently and without proper aseptic precautions, a periuterine inflammation may be excited, resulting in adhesions, but that would not be the fault of the agent.

The method of application will depend upon the character and structure of the growth and the symptoms it is producing. When the tumor is a hard fibrous growth, the negative pole is to be employed, an uncovered metallic electrode being introduced into the uterus. This will constitute the active pole, and the electrode may be made of any material, because it is not acted upon by this pole. Copper is to be preferred because it may be readily bent to suit the curve of the canal. The ordinary uterine sound, insulated to within three or four inches of the point by slipping a piece of rubber tubing over it, makes an excellent electrode. The external, or indifferent electrode, is to be placed upon the abdomen or back as is best calculated to include the main part of the growth between the two electrodes. This should consist of a pad made of several layers of thick felt thoroughly wet, and having the surface soaped to diminish resistance. It should be as large as can be conveniently applied to distribute the current and lessen the resistance.

The most satisfactory method of introducing the electrode into the uterus is along the index finger in the vagina as a guide. But strict asepsis must be observed throughout every detail of the procedure. The hands should be sterilized by scrubbing them for five minutes with Synol soap, and the electrode must be sterilized by boiling in a 2 per cent. solution of the same for three minutes, after it has been scrubbed with a brush; or it should be passed several times through an alcohol flame. or that of the Bunsen burner. The vulva should likewise be scrubbed with Synol soap, and the vagina should be irrigated with at least two quarts of a 3 per cent. solution of the same, employing the distention method of irrigating. This consists in inserting the vaginal nozzle and compressing the labia, until the vagina becomes distended, then releasing the pressure and permitting the accumulated fluid to escape with a rush. This should be repeated until the reservoir is exhausted. The reservoir should be placed high, at least five feet above the table upon which the patient rests.

When zinc or other oxodized electrodes are used, they should be scrubbed with a nailbrush on a cake of fine Sapolio soap, to clean and brighten the surface.

When there is hemorrhage or profuse or prolonged menstruation, the positive pole is to be employed in the uterus instead of the negative, and the electrode should be of platinum or zinc; preferably the latter, because the oxychloride of zinc that is liberated by the action upon the metal is more active in controlling the bleeding. After the bleeding has been permanently controlled the negative pole should be substituted for the positive.

Soft myomatous growths should have the positive pole applied to the interior of the uterus; and zinc electrolysis, secured by means of an electrode made of this metal, gives better results than simple positive electrolysis with the platinum electrode.

When these tumors are favorably situated, so as to permit the application of the current directly to the structure by puncture into it through the vagina, if judiciously employed, the result will be more prompt and more pronounced. The puncture is to be made with a steel needle, of small diameter, to a depth of ½ or ¾ of an inch. But this method of application should never be attempted unless the puncture can be accomplished without the risk of wounding the bladder, rectum, uterine artery or ureter; and never without observing the strictest aseptic precautions, both at the time and subsequently, until the puncture has healed. There is no doubt that the application of the current in this manner, directly to the structure of the growth, exerts a more decided action upon it than when it is applied through the uterus.

The application of the galvanic current through the vagina by means of the cotton covered ball electrode, can only exert a feeble electrolytic action upon the tumor, therefore it is of little value, except in relieving congestion.

The strength of the current to be employed will vary with the individual susceptibility. Usually the strength of the application of the negative pole to the interior of the uterus may be from 50 to 100 M. employed for ten minutes each time, and the application may be repeated every second or third day if the treatment is to be continued for a short period (one or two months). It is better to employ active treatment of this character for a period of two or three months, then discontinue it for two or three months and observe the result, repeating the applications if it is favorable.

The strength of the application of the positive pole when the zinc electrode is used should not exceed 50 or 60 M. employed for ten minutes.

The strength of the current used for puncture through the vagina should be 50 to 100 M. continued for ten minutes. The next puncture is not to be made until the previous one has healed. Then the puncture should be made in a different location.

The apparatus required for this treatment is much less expensive than is generally supposed. Sixty dollars would furnish a complete outfit for administering the galvanic current. There will be required 40 Lachlanche cells, a current controller, a reliable meter and the electrodes with conducting cords. Any dealer will explain how the cells should be set up and connected with the meter and controller in the circuit.

The faradic current is to be regarded as most effective for relief of pain and congestion. Though some reduction in the size of these growths has been reported from the use of this current, I am inclined to attribute this wholly to a restriction of the capillary circulation which can only be transient because it is powerless to remove the conditions that produce the increased blood supply to the tumor. The method of application is with a metal ball electrode in the vagina and a large dispersing electrode on the abdomen. The current should be as strong as can be comfortably borne without producing pain or discomfort. The application should be continued for at least 15 or 20 minutes, and should be repeated every day or every second day, as required to afford relief.

Static electricity is useful for relieving pain but cannot be expected to bring about any material change in the growth itself. Both the static spark and the static induced current may be employed with benefit. The spark is to be employed to the surface of the abdomen through the clothing, but the corsets should be removed because of the steels. The static induced current may be employed with one electrode (a metallic ball) in the vagina well up against the vault, and the other over the tumor on the abdomen. The external electrode should be a felt pad as large as can be conveniently applied so as to include as much surface as possible. Both electrodes may be applied to the external surface—one on the abdomen and the other on the back—but the result is not so good as where one electrode is applied against the tumor in the vagina. By preference the vaginal electrode should be connected with the positive pole.

Ergot administered internally is certainly a valuable auxiliary in some instances. It acts by stimulating contraction of the muscular structure of the uterus and by compression of the blood vessels, diminishing the supply of blood to the growth. It also has a controlling influence upon bleeding from the endometrium, which is sometimes an annoying symptom. In two instances at least I have known its influence combined with that of galvanic applications to the interior of the uterus to cause a breaking down of the intervening wall with sloughing of a large interstitial fibroid which was subsequently delivered successfully through the cervix, both patients making a satisfactory recovery. The combination of liquor sedans with ergot acts well in painful conditions.

I have found the iodide and bromide of potassium useful sedatives in these conditions, and they are certainly a material aid in some cases. They are usually administered five grains of the iodide with ten grains of the bromide in water three or four times a day.

Arsenauro (the bromide of gold and arsenic) is a most valuable internal remedy in these fibroid cases. It not only counteracts the anemia, but arrests the bleeding, while its effect in diminishing the menstrual flow where it is excessive is certainly very marked. In addition it affords relief by exerting a distinctly local sedative action, thus relieving pain which is so often an annoying symptom. These patients build up astonishingly under it when it is continued at the maximum dose for several months. The method of administration is to begin with six drops in water three times a day, after meals, and increase the dose one drop every day until the dose reaches sixteen drops; then continue it at this dose.

Recent observations have led me to conclude that interstitial fibroids of moderate size do sometimes disappear under the influence of electricity, aided by the internal remedies enumerated above. During the past year I have observed such tumors disappear in three cases, and many others have diminished very much in size. Prior to two years ago I was led to make the statement that I had never seen a fibroid removed by electricity, except where it had caused sloughing and a discharge of the mass through the cervix. But recent observations have compelled me to change my views. Like others, in the beginning I was induced to try the benefit of electricity in all varieties of fibroids, because at that time their extirpation had not been demonstrated to be a safe procedure. Now, however, the limitations of electricity have come to be better understood, and by restricting its use to those cases where it has been observed to yield results, and operating, where permissible, in those cases where it could not be expected to accomplish anything, there are now fewer failures and consequently more satisfaction in dealing with these cases.—*Phila. Med. Journal.*

ENLARGEMENT OF THE SPLEEN IN CHILDREN.

Discussion by Samuel West, M.D., at the British Medical Association Meeting, at Ipswich, August 13, 1900.

The child is subject to the same enlargements of the spleen as the adult, but with a frequency which varies according to the degree to which they are exposed to the common exciting causes. In childhood growth is active; this presumes active growth in the blood and blood-making organs to keep pace with the general demands of the body. Active growth implies instability of structure, so that slight causes may produce great disturbing effects.

We might therefore a priori expect that children would be subject to enlargements of the spleen of a kind and with a frequency uncommon in the adult. Besides this, enlargements of the spleen are more easy to detect in the child.

In what now follows I shall address myself to enlargement of the spleen as it is met with in children, drawing attention to the points in which adults and children differ, and finally dealing fully with the forms of splenic enlargement which are more or less peculiar to children and infants.

THE SPECIFIC FEVERS AND SEPTIC DISEASES.

In all alike post-mortem observation proves the spleen to be almost without exception enlarged, though it is by no means always easy to demonstrate this enlargement during life.

I do not know that there are any post-mortem statistics to prove that enlargements of the spleen are more common in these fevers in the child than in the adult.

Malaria.—Malarial enlargement of the spleen in this country is certainly rare in children, for ague is rare; but not so in countries where malaria is common. It may then be found where there is little or no evidence of definite malarial attacks.

Leucocythemia.—Leucocythemia is usually met with in the middle period of life and is comparatively uncommon in children and very rare in the young; yet well-marked instances have been recorded in infants of a few weeks, e. g., eight to ten weeks.

Hodgkins' Disease.—With Hodgkins' disease the difficulties are greater, but they arise chiefly from the indefinite character of the disease itself. Hodgkins' disease occurs fairly frequently in children, but is very rare before the age of eight years, and is, I believe, unknown in infants.

Regarded as the cause of splenic enlargement the difficulty of diagnosis with Hodgkins' disease is not nearly so great as it appears, for the spleen becomes enlarged, as a rule, only subsequently to the enlargement of lymphatic glands in general, so that there is this general glandular enlargement to assist the diagnosis.

Tubercle.—The spleen is almost the favorite seat of tubercle and rarely if ever escapes when tubercle is disseminated either in the acute or chronic form.

In the chronic form the enlargement may be considerable, for the spleen may be stuffed with caseous nodules as large as a cobnut.

Syphilis.—Syphilitic enlargement of the spleen is of clinical importance in one class of cases only, viz., that of infants and very young children.

All that has hitherto been said has been somewhat of a preliminary and introductory nature leading up to the important subject which we have now more especially to consider, viz., that in which the enlargement of the spleen is associated with profound anemia and which is usually named splenic anemia.

The name is unfortunate for two reasons: First, that it seems to imply or assume what really is not yet proved, that the anemia in some way depends upon and is caused by the affection of the spleen; secondly, because the same term is applied to two entirely different clinical affections—the one a rare disease affecting adults only and only very rarely children and, so far as I know, not recorded at all in very young children and infants; the other, a not uncommon disease to which infants are especially liable, though it may continue from infancy through the first two or three years of life.

In either case splenic anemia has many synonyms, e. g., splenic cachexia, splenic pseudo-leucocythemia, lymph adenoma splenica, splenomegalia primitive, and many others, names which on the one hand indicate the difficulties of diagnosis, and, on the other hand, how much there is to be learned as to the real nature of the disease.

If the term splenic anemia be obtained we must distinguish the two groups as splenic anemia of the adult and splenic anemia of the child.

A.—Splenic Anemia of the Adult.

(Splenomegalia primitive.)

I do not think it necessary in this connection to enter into any description of these cases, for they are so rare in children.

B.—Splenic Anemia in the Infant.

The nature of the case is plainly indicated by the peculiar anemia and the enlargement of the abdomen. The anemia is profound and pallor very striking; the complexion has a peculiar, waxy, ivory-like color, with a tinge of olive-green in it, which is very characteristic. The abdomen is tumid and the enlargement of the spleen often obvious to the eye.

The child is usually not emaciated and may be plump, but is very feeble. The blood shows no changes but those of simple anemia, and there is little or no general enlargement of the lymphatic glands.

The child is brought under observation usually on account of its ill-health, weakness, or pallor; occasionally on account of respiratory catarrh, or gastro-intestinal disturbance, or some other accidental complication, but only rarely because the abdomen is enlarged.

Most of the other symptoms are accounted for by an extreme anemia.

The splenic enlargement is easy to make out; it may be enormous, so that the organ may extend forward beyond the umbilicus and downwards as far as the anterior superior iliac spine. It moves freely on respiration, is smooth on the surface, and even when much enlarged is not tender to palpation.

The changes in the blood are those of simple anemia, the cells being greatly reduced in number but retaining their relative proportion to each other. The number of red cells may fall as low as 40 per cent. of the normal; if below this the result is almost invariably fatal. The red cells retain their normal amount of hemoglobin, though some writers maintain that it is reduced as in chlorosis. Nucleated red cells and megalocytes are often present in small numbers, but the eosinophile cells do not vary.

If there be any increase in the number of white cells it only affects the lymphocytes, and this stands in direct relation, it appears, with the fever.

COURSE, DURATION, PROGNOSIS.

The affection commences almost invariably in infants and very young children, and when discovered for the first time in older children has, in all probability, dated from infancy.

The liability of the sexes is equal. The affection runs a chronic course, lasting some weeks, but in the end many cases get quite well; but on the ultimate prognosis very varying opinions are held by different writers.

Treatment.—The treatment is that of anemia, and consists of good food, plenty of light and air, cod-liver oil, hypophosphites, iron and similar remedies.

Quinine is useful in malarial cases, mercury and iodide of potassium in syphilitic cases, but the specific remedies, especially mercury, do no good and are even actually harmful when the specific cause is absent. Arsenic is also a favorite remedy, but is far inferior to iron.

The association of enlargement of the spleen with rickets and syphilis has already been mentioned and it is important to consider the relation in which these conditions really stand to one another.

Syphilis.—Enlargement of the spleen is almost constant in active syphilis in the child. Among infants with congenital syphilis it is found in at least 50 per cent. and a yet larger percentage among still-born syphilitic fetuses.

The association of syphilis with enlargement of the spleen is, as already stated, held by many to be unfavorable, and it is only in the syphilitic cases that anti-syphilitic remedies do good.

Rickets.—No doubt the two conditions are often associated, but the figures given by different authors vary.

On the other hand, the enlargement of the spleen is not constant in rickets.

Finally there is no relation between the degree of rickets and the size of the spleen.

Further, it must be borne in mind that most of the children of the poor attending hospitals are rickety, irrespective of what complaint they present themselves for.

The facts, then, bearing on the relations between syphilis, rickets and enlargement of the spleen, appear to be these:

1. That syphilis is occasionally and rickets frequently associated with splenic anemia.
2. That in neither case is the association constant.
3. That they are, neither of them, the sole cause and are probably

not the cause at all except perhaps indirectly by means of the ill-health to which either leads.

Another question of interest remains, viz., the relation which exists between the anemia and the splenic enlargement.

There are three possible alternatives: (1) The enlarged spleen may be the cause of the anemia; (2) the anemia may be the cause of the enlarged spleen; (3) both the anemia and the splenic enlargement may be joint results of some common cause.

If neither of the earlier explanations be correct it would seem to follow that the third explanation must be the true one, viz., that both conditions depend upon one common cause. It may be, as some hold, that any condition of the health serious enough to lead to profound anemia in infants may be associated with splenic enlargement. If this be true, it would follow as a corollary that when the health is cured the splenic enlargement would disappear. At the same time there are many objections to so wide a view as this, and it follows that if there be a common cause we do not yet know what it is.

The points to which I would specially draw attention in the discussion are:

I.—In the splenic anemia of infants:
  (*a*) to its course and duration.
  (*b*) to its prognosis as regards life and recovery.
  (*c*) to the relation in which it stands to—
    1. Rickets.
    2. Syphilis.
  (*d*) to the relation in which the enlargement of the spleen and the anemia stand to one another.
  (*e*) to the treatment.

II.—In other forms of splenic enlargement in children, to the frequency in the very young of—
  (*a*) Malaria.
  (*b*) Leucocythemia.
  (*c*) Hodgkins' disease.

—*Pediatrics.*

THE TREATMENT OF SUMMER DIARRHEA OF INFANTS.

By M. LOEWENTHAL, M.D., Brooklyn, N. Y.

If we should inquire into the treatment advised by different writers in regard to the many forms of diarrhea, we are brought at once to a standstill, there being no method or arrangement which will serve as a guide. Formerly every case of summer complaint or intestinal inflammation of children was grouped under the head of cholera infantum, and the treatment was the same. This general group has been subdivided by Pepper, Meigs, Henoch, Schubert, Jacobi and Holt, into distinct types, and more minute classifications of these various disorders are now made, and the nomenclature is not limited to the narrow term cholera infantum. The above authors described the varieties of diarrhea as choleraic, inflammatory, bilious, dysenteric, and lienteric, the primary forms being cholera infantum, catarrhal diarrhea and dysentery. In an article read some months ago, Dr. Lesage made sharper distinctions, which are important in the treatment of infantile diarrhea. His classification was as follows:

First. Acute diarrhea, which may be of two types, alimentary or infectious; in the first form the stools are yellow, not frequent, and consist of a large amount of undigested food. The second form is characterized by numerous stools, yellow in color, fetid, neutral or acid in reaction, and containing microbes. This kind of diarrhea occurs in infants who are being weaned or those who have been brought up on the bottle.

The second group is the lienteric, the symptoms being white stools of some consistence, becoming liquid later, but still remaining white, or sometimes having a greenish tinge, showing the presence of bile.

The third group comprises the reflex diarrhea caused by teething, the stools being yellow, serous, and not containing any particles of food.

In the fourth—green, or bilious, diarrhea—the stools are green and markedly acid in reaction, containing a large amount of bile.

The last form is the green diarrhea, due to a specific bacillus. The stools are very green, this being not caused by bile, but by the action of the above bacillus. We usually find this form in epidemics.

In these various disorders, what treatment can be suggested? Have we one line of remedies laid down to adopt? If there is fever we give antipyretics. But should we administer purgatives, antiseptics, opiates, astringents, alkalies, or other remedies generally used in these cases? There is no question as to the importance of a carefully regulated diet, of proper clothing, and, in the majority of these cases, of fresh air. Still, despite the above measures, we fail a good many times. In those cases in which pain is prominent, how many medical men abhor the idea of prescribing opiates, even in small doses, which hardly do any good. My opinion is that could we relieve the pain, we would get better results from the other measures.

Have we a substitute for opium—something which will produce all the desired results without the dangerous narcotic effects? Until a month ago I had exhausted the materia medica, when, having had some success with the latest morphine derivative, heroin, I began its use very cautiously, not taking for granted the observations of writers who stated that heroin was safe. I was both surprised and delighted. I knew I was venturing on unsafe ground, because authorities looked upon opium generally as likely to produce disastrous consequences. Nevertheless, with this "bugaboo" staring me in the face, I kept right on with heroin, using larger doses when necessary, with the best results. In every case of infantile diarrhea under my care, although the treatment indicated sometimes called for antiseptics, purgatives, astringents, etc., I employed heroin at some stage of the disorder. Before describing some of these cases, I would say that I do not believe there is any more harm in prescribing heroin in therapeutic doses than there is in prescribing sugar of milk. We need not fear the protests from medical writers against giving opium in this form to children; of course, this does not apply to excessive doses.

There are several contraindications to the use of heroin in the diarrheas of young children. In my own experience I have found it to be of no service in an acute diarrhea before we have freed the intestines from decomposing food; in those cases in which the odor of the discharge is foul, and there are but one or two passages daily, as well as in cases in which is found an increase of temperature, with cerebral symptoms, and when the passages become more frequent and the odor unbearable.

Heroin was of greatest advantage in patients having large watery passages; in the dysenteric form, in cases of diarrheas which have lasted for some time and in which the passages are quite frequent and small in amount; and lastly, in cases in which the passages consist of undigested food, the bowels acting as soon as food is introduced into the stomach. The following cases of summer diarrhea will illustrate the treatment I have adopted:

Case I.—Clara I., aged 8 months, artificially fed, but well nourished. The mother states that for the past few days the child has had fluid motions, containing some undigested food. Previous to the attack she had some pain for a few hours. Examination showed the following: Slight abdominal distension, temperature normal, stools very frequent, sour smelling, light green. The baby is very peevish at present. Diagnosis: Simple functional diarrhea. Treatment consisted of rest to the stomach for twenty-four hours, a little distilled water being given now and then; calomel, $\frac{1}{20}$ grain, every hour, until four doses had been taken, and heroin, $\frac{12}{20}$ grain, every few hours. The next day when I saw the infant it had rested well, and for the past six hours had but one passage, which was nearly normal. The child was put on a careful diet, and heroin discontinued. I saw the mother a few days afterward, and she stated that the baby was all right again.

Case II.—Charlie P., 6 months old, breast fed. Diarrhea, with pain, thin stools, dark green, acid reaction; slight abdominal distension. The diarrhea was due to the mother having received news of her father's sudden death by accident, causing her milk to become altered. The treatment consisted of sterile water for twenty-four hours, with a small quantity of barley added. The next day the child was the same. I prescribed heroin $\frac{1}{250}$ grain every four hours, until six doses had been taken. The following day the passages had become normal, and the pain had disappeared. The child was put to the breast and I heard no more from the case.

Case III.—William C., 9 months old, artificially fed. Owing to indiscreetness in feeding the child had diarrhea, frequent stools, sour smelling, pale brown, and frothy, containing undigested material. Abdominal distension, with pain. The treatment consisted of absolute abstinence from food, giving sterile water, and the administration of calomel, $\frac{1}{20}$ grain, every hour for four hours. The child seemed weak, and whisky was given in small doses. The next day the patient seemed better, but would cry occasionally from pain. The diet was rice water with sugar of milk. The passages remained unchanged, although not sour smelling. I prescribed heroin, $\frac{1}{200}$ grain, every four hours for six doses, and the mother reports that the baby is well again.

Case IV.—Nathan S., 1 year old, has been weaned. The trouble came on gradually, and at first it was thought the child had simple indigestion. He was fretful, subject to colic at frequent intervals, restless at night and feverish, with looseness of the bowels, the motions being thin, of offensive odor, and yellowish in color. He has had some vomiting; temperature, 101°. The next day the child's condition was worse. The stools were green, of an offensive odor, with passage of considerable flatus. Pain, fever, and temperature persisted; the vomiting had ceased. Diagnosis: Acute inflammatory diarrhea—toxic form. The treatment consisted of castor oil in drachm doses, which was retained, four doses having been taken in eight hours. The diet was beef-blood. As the condition continued unchanged, calomel, one grain, with heroin, $\frac{1}{125}$ grain, was given every three hours, with cool baths for the fever, and occasionally small doses of whisky. The following day the baby was considerably improved. The calomel was stopped, the heroin being continued in $\frac{1}{150}$ grain doses every four hours. Barley water, white of egg, beef-blood, comprised the diet. The day following the child was progressing nicely, the stools being nearly normal. Heroin was stopped. I saw the child a few days afterwards, and it was perfectly well

Case V.—Estelle H., aged 17 months; chronic diarrhea, caused by irritation of the intestinal canal by injudicious diet from fermentation of food. About two weeks before I saw the child it had an acute attack of diarrhea, which probably left the intestinal wall ulcerated, owing to the persistence of the disease. Digestion was interfered with to such an extent that the development of toxins took place regularly, resulting in a condition of anemia, with an unbalanced nervous system. The symptoms of this very interesting case were as follows: During the morning, until late in the afternoon, the temperature was normal; in the evening slightly below normal, with pain and slight tenderness of the abdomen, gradually growing worse as night approached. The stools were very frequent, having a disgusting smell, and occasionally there were found small, hard lumps, consisting of blood. The stools also contained considerable quantities of mucus. Flatulence was present, attended with distress. The child's appearance was fair, although it would now and then vomit its food. She would lie listlessly in a semicomatose state. Examination of the liver and spleen revealed nothing abnormal, although the abdomen was distended. The pulse was feeble, the feet and hands cold. The infant was very cross and did not sleep at night. The diet had consisted of sterilized milk, with vichy water as a drink. The treatment was as follows: For the first twenty-four hours cool sterile water, then albumin water, made as follows: To eight ounces of water the white of an egg was added, the mixture shaken, then strained through cheesecloth, and a little bicarbonate of soda and sugar of milk added. This was given in four-ounce doses every three hours, and the next day a little milk whey was allowed. The following day raw beef juice was administered, and subsequently a little soup and gruel. Medicinally, the child at first received tincture of iron in small doses. As this did not appear to do any good, high injections of fluid extract of hamamelis, one drachm to one pint of sterile water, were given after the bowel had been thoroughly irrigated with normal saline solution. The child did not seem to progress at all, when suddenly it came to my mind to use heroin. I then prepared the following: Fluid extract of hamamelis, 3 drachms, heroin hydrochloride, $\frac{1}{40}$ grain, mucilage of acacia and boiled water sufficient to make a pint. High injections of this solution were made three times daily, and after the fourth injection the child's stools were changed from fluid to semi-solid, the odor not being so repulsive; no specks of blood. Under the administration of whisky by mouth the baby also got stronger. This treatment was continued for four more days; the baby began to thrive, and was more lively; the stools appeared more normal; vomiting ceased; the abdomen lost its distension, with occasional passing of flatus. The patient slept well at night, and developed an enormous appetite. The injections were stopped. The treatment now consisted of heroin, $\frac{1}{8}$ grain, twice a day, inunctions of cod-liver oil, and daily seashore excursions. After four days the passages were normal, and the baby was feeling pretty good. All treatment was stopped, and I am happy to say the little patient made a fine recovery.

Case VI.—Johnny G., aged 3 years. His trouble began with loose movements, about three to four times an hour. The stools contained mucus, were small in amount and blood-streaked, although several movements were large and fluid. Severe, colicky, abdominal pain, with tenesmus; desire for stool very frequently ineffective; nausea and vomiting. Appetite practically lost; considerable emaciation, and elevation of temperature. The cause of this trouble was the introduction of indigestible food. Diagnosis: Catarrh of the colon. The treatment was as follows: The boy was put to bed; the diet to consist of albumin water for one day, and then to be made more liberal the second day by the use of beef juice, broths and Pasteurized milk. He was also given calomel, 1½ grains, followed in three hours by a dose of castor oil. The following day found him a little better, but the stools were frequent and tenesmus, with desire to defecate, persisted. I then commenced irrigation of the bowel with starch water, and heroin hydrochloride, $\frac{1}{40}$ grain, three times daily, with good results. These injections were continued for two days and restored the boy to a much better condition. Food was now given more freely; irrigations were stopped, and the following was given by mouth, three times daily, for three days: Salol, 1 grain, heroin, $\frac{1}{45}$ grain. The boy made an uneventful recovery.

Case VII.—B. J., aged 19 months. Summer diarrhea—functional. The symptoms were typical. The treatment consisted of cool boiled water every hour, with no food for twenty-four hours. The following day barley water in two-ounce quantities was given every two hours for the next twenty-four hours. As the child appeared weak, whisky was added occasionally to the above. This diet did not control the diarrhea to any extent, and the child was given a dose of castor oil, which produced two or three evacuations. The next day the patient was no better. The diet was changed to toast-water, beef juice, peptonized milk, with occasional addition of whisky. Heroin, $\frac{1}{75}$ grain, with one gram of sugar of milk, was administered every four hours. The following day the diarrhea had ceased, pain was dispelled, the child bright. The remedy was discontinued, and I heard no more from the patient.

Case VIII.—Sadie J., aged 6 months, suffering from gastro-intestinal catarrh. She improved somewhat under ordinary treatment, but a few days afterward I was sent for, and found the child in a very bad condition, the stools containing mucus and blood. Antiseptics, astringents and irrigation of the lower bowel, all did well in turn, but the effect did not remain permanent. The child suffered great distress and vomited freely. I dissolved one tablet of heroin hydrochloride, $\frac{1}{12}$ grain, in one drachm of sterilized water, added a little sugar of milk, and gave the baby five drops every three hours until four doses had been taken. The child slept well at night; awoke in the morning feeling bright, had but one passage during the day. I continued the heroin hydrochloride treatment during the day every four hours, and the next day the child was perfectly well, had one normal passage, and was as lively as a cricket. I saw it again a few days later, and it was getting on nicely.

Case IX.—Mary G., aged 11 months. Diagnosis: Entero-colitis, with subacute bronchitis. Temperature 100°. Treatment by regulation of diet, antiseptics, etc. The patient did well for a day or two, but on the third day I found her much emaciated; temperature 103°, pulse 120, respiration 32. The child could not move its limbs, and had loose stools, mixed with mucus and blood. I prescribed calomel, $\frac{1}{2}$ grain, every hour for five doses, and then every three hours. Two days later the stools had changed in character, and the calomel was discontinued. The child cried persistently from pain, which was quite marked when pressure over the epigastric region was made. I prescribed tincture of nux vomica, $\frac{1}{2}$ gtt., and heroin hydrochloride, $\frac{1}{200}$ grain, given in 25 drops of chamomile infusion, three times daily. The next day the child was feeling better. It looked cheerful, and when pressure was made over the abdomen there was no pain. I continued treatment a few days with good results, and a few days later the child was well and playing about. Temperature, pulse, respiration, and bowels normal.

In administering heroin hydrochloride to young children we need not feel alarmed, as we would if we were giving opium. I have a regular table of doses for children, which I subjoin:

Aged 1 month	grain $\frac{1}{300}$	maximum dose
Aged 2 months	grain $\frac{1}{275}$	maximum dose
Aged 3 months	grain $\frac{1}{250}$	maximum dose
Aged 4 months	grain $\frac{1}{240}$	maximum dose
Aged 6 months	grain $\frac{1}{220}$	maximum dose
Aged 8 months	grain $\frac{1}{200}$	maximum dose
Aged 10 months	grain $\frac{1}{150}$	maximum dose
Aged 12 months	grain $\frac{1}{125}$	maximum dose
Aged 2 years	grain $\frac{1}{50}$	maximum dose
Aged 3 years	grain $\frac{1}{36}$	maximum dose
Aged 4 years	grain $\frac{1}{30}$	maximum dose
Aged 5 years	grain $\frac{1}{25}$	maximum dose
Aged 6 years	grain $\frac{1}{20}$	maximum dose
Aged 7 years	grain $\frac{1}{18}$	maximum dose

For adults I generally prescribe $\frac{1}{20}$ grain, and raise the dose to $\frac{1}{10}$ grain, if necessary. It combines very well with pepsin and acids, but should not be used with alkalies, as it will precipitate. I have never seen (or read of) any bad effects form heroin hydrochloride. It does not interfere with digestion, and consequently is valuable in cases of acute gastritis. colic, spasm, dyspnea, and other gastro-intestinal disorders.

CREOSOTE IN PNEUMONIA: A RÉSUMÉ.*

By I. L. VAN ZANDT, M.D., Fort Worth, Tex.

January 7, 1894, on account of indications of fermentation in the alimentary canal, I gave a patient, forty-eight hours sick with pneumonia, one drop of creosote every three hours. This was added to my ordinary prescription. I was surprised, on my return the next day, to find the temperature slightly subnormal and other symptoms correspondingly improved. The dose was reduced; the temperature went up. Again I gave a larger dose, and the next day dismissed my patient.

I was so impressed by this observation that I began then, and have continued to this day, prescribing creosote in all cases of pneumonia.

In June, 1898, I read a paper on the subject before the North Texas Medical Association. This was received by some with incredulity, they citing the fact that "all authorities" (whatever that may mean) said that pneumonia was a self-limited disease, and must run its course. Others were willing to make a trial on my report, reinforced by that of several gentlemen present, who had adopted the treament at my suggestion.

Quite a number of those present, and others who read the published paper, have reported saisfactory results.

In my former paper I mentioned that there was some unevenness as to results in different cases, some yielding in twenty-four to forty-eight hours, other continuing a week or more. I suggested that difference in the infecting micro-organism might account for this unevenness, favoring the idea that the pneumococcic-infected were most amenable to the treatment. This seems to have a probable corroboration in the reports of some others, written and verbal; but the absolute corroboration can be had only when the clinician and microscopist unite in the investigation.

My original prescription was ammonium salicylate gr. viiss., creosote gtt. i., syrup ʒ i., every three hours. In some cases the creosote alone was given. Latterly I have given creosote carbonate gr. (or ♏) viiss., emulsified with acacia. Others give larger doses with possibly better results and no harm.

During all this time I have had cases in which the fever was gone in from twenty-four to forty-eight hours, and I am now somewhat disappointed if my patient is not ready for dismissal by the third or fourth day. In cases which persist longer there is generally an amelioration of symptoms, and the coming of an appetite, to which I was formerly a stranger in pneumonic cases. There is generally a gradual decline in the fever, with only slight moisture of the skin, a critical sweat being rare.

Another thing I, as well as others, have found, is that if the medicine is discontinued as soon as the fever has ceased, there will likely be a recurrence of all the symptoms. Hence I continue the medicine at longer intervals for two or three days after subsidence of the fever.

This recurrence of the fever in lobar pneumonia is a strong argument in favor of the improvement being due to the medicine, for, according to Austin Flint, in lobar pneumonia "relapse never occurs."

---

* Read before the Central Texas Medical Association.

The mortality of pneumonia is, as given by Tyson, lobar 20 to 40 per cent., lobular 30 to 50 per cent.; Osler, lobar 20 to 25 per cent., lobular 30 to 50 per cent.; Delafield, lobar 12 to 34 per cent.; Anders, lobar 15 to 25 per cent., lobular 25 to 50 per cent.; average of all, 22 to 39 per cent.

In these seven years I can now recall only four fatal cases of pneumonia in my practice. Two of these were under my care from the beginning of the attack; one following grip, the other a measles case in most unsanitary surroundings. The other two patients were turned over to me in desperate condition; one sick a week, the other two weeks. In the earlier part of this time I think I lost two or three babies. I treated sixteen cases last winter, with no fatality; dismissing four on the second, five on the third, one each on the fourth, fifth, sixth, seventh, eighth, and two on the tenth days.

Within a year or two after my first observations I saw that some French writer was recommending creosote for bronchopneumonia. In the fall of 1898 "The Doctor's Factotum" contained an extract from the London *Lancet,* reporting twenty-six cases of pneumonia treated with creosote, without a death, of much shorter duration, and with a better recovery than usual. Creosote was not given early in these cases.

Prof. Andrew H. Smith, of New York, in the *Medical News,* November, 1899, after citing several writers and his own experience, goes so far as to recommend that family physicians keep their patrons provided with carbonate of creosote or one of the salicylates, preferably the former, as being better tolerated by the patient, so that in case of indications of an attack of pneumonia (pain in the side with chill), he may take the drug at once and probably prevent the development of an attack.

Dr. J. A. Gracey, in the *Charlotte Medical Journal,* December, 1899, says: "The treatment of pneumonia by the administration of creosote was first brought to the notice of the writer by a paper read by Dr. Van Zandt, of Fort Worth, Tex., at a meeting of the North Texas Medical Association. . . . My method is to give either drop doses of creosote every two hours, or ♏x. or xv. of creosote carbonate in some simple menstruum. When given early in the attack the results are almost specific; the temperature subsides, the respiration improves, and in the course of twenty-four hours the condition of our patient is so much improved that we sometimes doubt our diagnosis.

"In later stages the results, while not so brilliant, are yet very satisfactory. The cough, pain, and temperature subside, the character of the sputum is changed, and recovery is hastened. And not only in pneumonia do we get such good results, but in acute bronchitis as well.

"The method is worthy of trial, and one has only to use it to be convinced of its merits. Of course, the strength of the patient must be supported, the secretions and excretions attended to; and I am satisfied that we have in the creosote treatment as near a specific for the trouble as is known to-day.

"At the pediatric congress held in Marseilles in 1898, Dr. Cassoute, physician-in-chief to the Marseilles hospitals, gave a brief preliminary notice of his new method for the treatment of pulmonary affections. The method consists in the continuous administration of fairly large doses of creosote carbonate. In most cases a typical fall of temperature occurred during the first twenty-four hours of treatment; and if the creosote carbonate was continued for a sufficiently long period of time the apyrexia was a permanent one. The temperature curve rose again, however, when the drug was discontinued, before the auscultatory signs had disappeared. Relapses and sequelæ, so frequently seen under other methods, were entirely absent."

Dr. Charles F. Stokes, United States Navy, in the *Brooklyn Medical Journal*, August, 1900, says: "I have employed it in several cases with excellent results. . . . Early treatment offers most satisfactory results."

Dr. J. W. Frieser, of Vienna, in the *Aerztliche Central-Zeitung* says: "The treatment of acute inflammatory affections of the respiratory passages with the drug has yielded entirely satisfactory and even brilliant results in my hands. Both clinician and practical physician are fully aware that we formerly possessed no remedy that was even half-way satisfactory in its action upon pneumonic disease process. Our entire therapeutic armamentarium was symptomatic and expectant in its nature. . . . But it is an unmistakable advance if experience teaches us the employment of a remedy which has an influence on the disease process itself, and possibly upon the specific organisms that cause it. The favorable effects of creosote carbonate upon the various forms of pneumonia have been noticed by others as well as by me; and they are undoubtedly due to antiseptic and antibacterial action of creosote, which, in the form of the carbonate, can be introduced into the body in sufficient quantity and in innocuous shape. . . . Besides this it has a favorable influence on the heart and the patient's general condition; it causes, as I have often noticed, a rapid fall of temperature and retrogression of the local symptoms. The gastro-intestinal canal is in no way injured by its use. . . . In some cases the inflammatory processes in the lungs got well with such extreme rapidity that the method might be called an abortive treatment. The temperature rapidly sank to normal, the general condition noticeably improved, the tongue cleaned and became moist, and the appetite returned. . . . Equally favorable results were obtained from the use of creosote in five cases of acute bronchitis. The action of the drug was reliable and the recovery of the patient rapid."

Dr. Wilhelm Meitner, in the *Medicinisch-chirurgisches Centralblatt*, June 22, 1900, says: "The most important effect of the creosote treatment is the surprising fall of temperature a few hours after its administration is begun; it becomes normal in two days or sooner. With this the general condition improves, the pulse becomes better, the breathing quieter; the cough is lessened, thirst ceases, and the dryness of the mouth and lips disappears. Then the tongue cleans, the appetite returns, the entire course of the disease is cut short, and convalescence is about abrogated. Under creosote treatment I have never seen that weakness followed by a slow convalescence, which is the rule even in typical one-week pneumonias, under the usual medication.

"Some cases run so rapid a course under the treatment that it is hardly possible to give their history. A child falls suddenly sick, with a temperature of 102.2° or more, and the pulmonary signs of an acute catarrh. After two or three doses of creosote carbonate in the next four to six hours, it is better; in twenty-four hours the fever and physical signs are gone; on the second day the child cannot be kept in bed. An adult with marked coryza suddenly begins to cough violently; the first large dose of creosote mitigates his cough, and in twenty-four hours it has disappeared. To me, at all events, the favorable influence of creosote carbonate in acute pulmonary diseases seems absolutely demonstrated. I am sure that its action is the quicker the earlier its administration is begun; that it is harmless and well borne in the doses that I employ; and that no other treatment at all is required in the class of cases under consideration."

Dr. M. Eberson, in the *Aerztliche Central-Zeitung*, July 7, 1900, says: "It has been customary, after the diagnosis of a pneumonia has been made, to admit the presence of a severe disease, requiring five to nine days to run its course. Creosotal von Heyden is now prescribed by the attendant. When he returns on the next day there is no trace of fever. The child is playing, it is hungry, bright, and does not cough. Percussion and auscultation show no signs of inflammation. The physician, and more especially the parents, begin to have a doubt of the diagnosis. But now comes the interesting part! Treatment is stopped; and behold! on the next day the subjective and objective symptoms of pneumonia are again present.

"Two things may therefore be claimed for the creosote treatment. In the first place, it cuts short the disease in a most remarkable manner. In the next, and more important, it causes complete resolution of the disease focus, so that the sequelæ, more especially after catarrhal pneumonia, will not be as important in the future as they have been regarded to be in the past. Nor does it seem to me to be unimportant, considering the bacillary origin of pneumonia, that the sputum and excreta are voided disinfected, so that the contagiousness is reduced to a minimum.

"It is incontestable that the creosote treatment of pneumonia is a very important advance in practical medicine."

Now, with this array of testimony re-enforcing my own observations for the last seven years, I trust that the members of this association will not consider me oversanguine when I express the opinion that the use of creosote or carbonate of creosote in the treatment of acute pulmonary inflammations is one of the greatest life-saving discoveries of the century just ended.—*Medical Record.*

ECZEMA OF FEMALE GENITALS.

The following is recommended by Von Sehlen:

℞	Ichthyoli	ʒ iss	6
	Pulveris amyli	℥ i	32
	Vaselini	℥ ii	64

M. Sig. Apply locally twice a day.

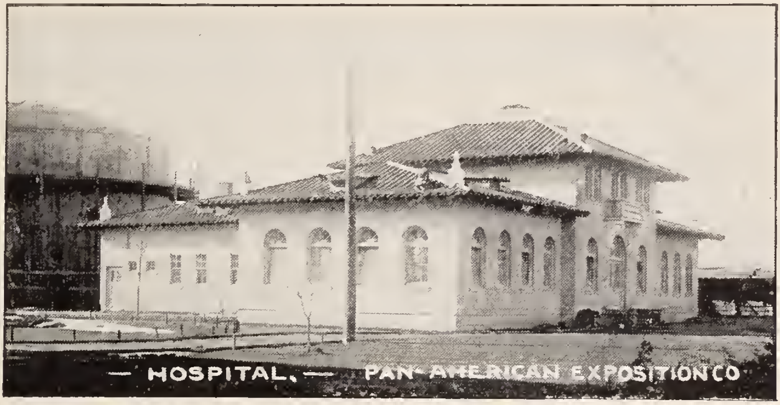
—*Encyc. Pract. Med.*

EMERGENCY HOSPITAL AT THE PAN-AMERICAN.

HOW EXPOSITION VISITORS WILL BE TAKEN CARE OF WHEN THEY FALL ILL.

A very pretty hospital building stands near the west end of the Mall. Floor area rather than elevation is a prominent feature in the construction of this important adjunct to the Exposition. Utility, first, last and all the time is the prime consideration in this design, though it is by no means a case of utility unadorned. In conformity with the general Exposition plan, the free Spanish renaissance has been treated, in this instance, with a strong leaning towards the old mission interpretation.

Having a frontage of 90 feet on the Mall, the main wing has a depth of 38 feet, with a height of but one story, except in the center, where it assumes the form of a square tower with a rounded top. This tower attains to the pretentious height of two stories, surmounted with two flagstaffs. One staff supports the Exposition flag, and from the other waves the well-known Red Cross banner, the only universal international emblem that is recognized and reverenced in all countries.



A rear wing one story high runs back from the center portion a distance of 56 feet, with a width of 32 feet. This form of construction lends itself readily to this picturesque reminder of the early struggles of our first missionaries.

Color, here, as everywhere throughout the grounds, adds its mantle of beauty to the odd, and, in many cases, obsolete methods of construction, penetrating, rather than clothing the building in the warm changing tints of the sunset. A low wandering adobe mission house covered with heavy red tiling, its weather stains retouched by the gorgeous rays of the departing sun, may be readily imagined while looking at this rehabilitation of the past.

Any antiquated illusion that may be conveyed by the outside appearance of this building is, however, at once dispelled by a visit to the interior.

Modern arrangements that are both convenient and sanitary mark every feature. Approved medical and srgical appliances have been carefully selected in regard especially for their adaptability to emergency work and the exigencies that are likely to arise.

The main hospital entrance is from the Mall opening directly into a handsome rotunda decorated with tropical plants and suitable hangings of pictures, drapery, etc.

The main office is situated at the farther left-hand corner of this rotunda, where it is carefully tucked away under the staircase, forming an irregular alcove. It contains telephone and electrical annunciator, and messenger call service, with other modern and ncessary appurtenances. As this is lighted from above and encircled by a round gallery opening through the upper story, the effect is very pleasant and agreeable. The first floor front contains in the extreme western wing, two male wards with seven cots each, a bathroom, physicians' office, a morgue and a linen chest. The eastern wing contains a woman's ward, large enough to hold a dozen cots, with direct communication to the woman's bathroom. This wing also contains an office for the superintendent of nurses, private physician's office, a linen closet and other conveniences.

The upper story is intended for the use of the resident physician and the necessary attendants. It is fitted up with four pleasant, comfortable bedrooms and a bathroom. The rear wing, extending back from the main entrance, contains the operating room, sterilizing department and instrument cases. Immediately across the hall is the emergency bathroom and patients' waiting room. Still farther down the corridor is located the kitchen, pantry and dining room, which is intended for the use of patients only, as the staff have their culinary department in the service building, situated but a few yards distant. In the extreme southern end of this wing is the storage room for the electrical ambulances; this room also contains a station for recharging the batteries, electricity for this purpose being brought from an electric circuit provided for the electric launches on the Grand Canal. In addition to the two electrical ambulances, a steam or gasoline motor ambulance will be provided, to be ready in case of a possible failure of the electrical current. The building is provided with natural gas for heating purposes and for cooking when necessary for the patients.

Water, gas and electricity is carried to every part of the hospital in the most approved manner.

The building is plastered throughout and rendered sanitary and germ proof so far as possible, in every instance. The staff in attendance are uniformed to grade according to universal custom.

In the matter of equipment and appliances, everything is of the newest and best. A new litter attracts considerable attention; it is carefully balanced and so arranged that one attendant can operate it easily and noiselessly as it runs on two wheels about 20 inches in diameter, which are fitted with large inflated rubber tires. Sterilizing apparatus, with an apartment for instruments and another for towels and linen, is another necessary arrangement.

Roswel Park, M.D., is the director, Vertner Kenerson, M.D., deputy director, and Dr. Alexander Allen is the resident physician, a staff which will at once inspire confidence in all who are acquainted with these gentlemen or their work. The efficiency of this department is an illustration of the manner in which the Exposition is designed and executed in all its departments. Everything has been carefully arranged according to a great comprehensive plan, the details of which have been worked out in every instance with careful, conscientious precision.

In regard to the importance of this adjunct to the Exposition, it may be said that up to the 1st of March five hundred and four cases have been treated on the grounds, only one of which proved fatal. These include all forms of sickness and accidents to workmen employed upon the construction work. In this connection it is well to note that the number of cases treated at the Omaha Exposition was about three thousand, while the history of the hospital at the World's Fair in Chicago gives a total of 11,602 medical and surgical cases treated, resulting in 69 deaths.

It is hoped to have less use than this for the hospital at the Pan-American, though in the immense crowds who will attend, no doubt, many individuals will have occasion to appreciate the provision that has been made in this direction.

THE MALARIAL MOSQUITO ON THE SUSQUEHANNA.

By HARVEY B. BASHORE, M,D., West Fairview, Pa.

During the past summer I made some observations to ascertain the prevalence of the malarial mosquito (Anopheles) in this locality; namely, the suburb of Harrisburg. The conditions existing this season were, according to the popular notion, very favorable for malarial development—a low stagnant river and considerable hot weather.

The recognition of the Anopheles is extremely easy with the aid of a small pocket lens; the characteristic points being the spotted wings, long "feelers" and resting-position. This resting-position, although rarely at right angles to the surface, is at such an angle that with a little practice one is able to tell Anopheles from the position alone. Mr. L. O. Howard, the government entomologist, kindly verified the species for me. During the great heat wave from August 14 to August 22 inclusive, while the temperature was ranging between 70° and 100° F., mosquitoes were exceedingly plentiful and became a decided annoyance, even in the houses which were properly screened. During this period I captured and examined five hundred and forty specimens, of which four hundred were Culex and only one hundred and forty Anopheles (one hundred and thirty-three being quadrimaculatus and seven punctipennis); that is, only twenty-five per cent. were malarial. During this time there was very little malarial fever; I saw, I believe, only one case of intermittent fever in my own practice.

After the great storm in September, a cool wave spread over the region with the temperature in the morning ranging between 50° and

60° F. During this period, although mosquitoes seemed very rare, I managed to capture seventy-eight, of which fifty-six were malarial—about seventy-four per cent. Then (hardly a mere coincidence) there was an unusual outbreak of intermittent fever; personally I saw twenty cases in ten days, mostly tertian, requiring large doses of quinine and showing a marked tendency to relapse later on.

Late in September and at the beginning of October the Anopheles occurred only in the ratio of fifty per cent., and during this time there was a diminution of the number of cases of fever—twelve in thirty days.

In the month of October we had several severe frosts, and in the latter part of the month very fine weather, but Anopheles seemed to have gone into winter quarters, for only sixteen per cent. of the mosquitoes belonged to that family; likewise the intermittent fever seemed to have vanished, for there existed hardly a case. In every instance the mosquitoes were captured in the same place—the back porch and an outbuilding of my own residence—and, although there was no fever in this house, nearly all my cases occurred within a few blocks of it.—*Medical Record.*

REMOVAL OF FOREIGN BODIES FROM THE AUDITORY CANAL.

By G. C. SAVAGE, M.D,, Nashville, Tenn.

Anything that is small enough may be found at some time or other in the auditory canal of a child, having been placed there with its own hand. I do not know that I have ever seen an adult purposely place anything in the auditory canal. I have known children, while playing upon wheat soon after it was threshed, to get some of the wheat grains into the auditory canal. In one case the wheat grain had remained in the auditory canal some five years.

Now, one word as to removing foreign bodies of various kinds from the auditory canal, and then I will pass on to the point that I wish to emphasize, viz., the softening and removal of hardened wax. The only things needed, as a rule, for the removal of a foreign body from the auditory canal are these: First, a towel, to place over the patient; secondly, a basin of water made sterile; thirdly, a syringe; and lastly, a head mirror. A foreign body that cannot be removed by a stream of water from a syringe will be difficult to remove in any other way. A foreign body that has gotten into the ear, when there has been no instrumental interference, will be found in the outer part of the canal. A foreign body, unless it is comparatively small, will not often be found beyond the isthmus of the auditory canal. If manipulative means, the use of instruments, has not been resorted to, it is easy to remove such foreign bodies. In grown persons there is no need of anesthesia, but in children, even with the gentle stream of water from a syringe, I believe it is better to bring them under the influence of an anesthetic. Otherwise the foreign body may be driven so far back that it will be difficult to remove.

If it is attempted to remove a foreign body by means of forceps it will slip from the grasp and be forced farther back in the canal, and every attempt made with the forceps may force the foreign body just that much nearer the drum membrane. The probe, slightly bent, is sometimes used and may also force the foreign body back. The fact is, foreign bodies have been thus forced back against the drumhead, and even into the drum cavity itself. Another thing in connection with the instrumental removal of foreign bodies, is that the canal will probably be injured and we will have bleeding and swelling. None of these things will take place if we remove the foreign body by means of the syringe. It is, of course, possible to drive the foreign body back in the canal with a syringe, but not so if proper care in directing the stream is taken. The stream of water should be directed where there is most space between the foreign body and canal wall, and then as the return flow comes back the foreign body usually comes with it. The position of the head, of course, can aid. If we find the foreign body so large as to almost fill the auditory canal, we may aid the stream of water by posing of the head, by inclining the head toward the side in which the foreign body is located. Bugs not infrequently get into the ears of grown people and sometimes of children. When a live creature like a bug gets into the auditory canal we should first destroy its life, which is best accomplished by pouring oil into the ear, preferably castor oil or olive oil; or if there is no oil at hand we may use warm water and simply drown the bug.

Now we come to the study of accumulation of wax in the ear, which is nothing more nor less than a foreign body. In one case one ear had been plugged with wax for some thirty years, the patient being a maiden lady; but usually, when the ear is filled with wax, the patient is so deaf that he or she will seek relief sooner. These patients are so annoyed by the deafness and the noises that they often come at once to the physician or aurist to get relief. For a long while I tried to soften the old accumulations of wax with a solution of bicarbonate of sodium, glycerin and water. I would tell the patients to take a pinch of bicarbonate of sodium, a teaspoonful of glycerin and a teaspoonful of water, instilling some warmed into the ear. I would have them repeat this two or three times a day for one or two days, until soft enough to be removed with a syringe. I am thankful to somebody—I do not know who it is—for a method that is very simple, and which I propose to give. An author first gave the thought in the *New York Medical Journal*, and for some two years I have been following out that thought, which is to soften the wax by the instillation of dioxide of hydrogen. The peroxide is practically as good as the dioxide, except perhaps the peroxide is a little more acid and irritating than the dioxide. This is warmed and allowed to remain in the auditory canal five or ten minutes, and usually in this short time it will soften the hardest kind of wax so it can be readily removed with a stream of water. After instilling the dioxide of hydrogen five or ten minutes, if the accumulation of wax is recent a brownish, frothy liquid will be removed by the syringe, the wax being actually dissolved. Sometimes the plug, being only loosened by the dioxide, will be easily washed out.

There are people in every part of this country who are sufferers from the over-accumulation of wax in the auditory canal, and it is possible to soften the wax and remove it, as I have described, in a very few minutes.—*Medicine*.

ATROPHY OF THE MUSCLES OF THE SHOULDER AS AN EARLY SIGN OF PHTHISIS.

At the meeting of the Société Médicale des Hôpitaux, of Paris, on October 26, M. Emile Boix called attention to an early sign of phthisis which has not received much attention—atrophy of the scapulo-thoracic muscles on the affected side. In advanced cases, of course, such atrophy is well recognized. M. Boix relies on inspection and palpation, rather than on measurement, to detect slight differences between the two sides. Inspection of the shoulders, both from the front and the back, must be carefully carried out in a good light. If necessary, it may also be performed with the patient lying down, both on his abdomen and on his back; or better still, the patient may be seated. Palpation will corroborate the evidence derived from inspection. With the tips of the fingers the thickness, consistency, and elasticity of the muscles are appreciated, and at the same time the habitual tenderness—a sign of the first importance—is discovered. The difference between the two sides can also be appreciated by pinching between the fingers the fleshy mass above the clavicle and spine of the scapula. M. Boix finds that in phthisis muscular atrophy is more marked on the side in which the lesions are more advanced, and is unilateral if the lesions are unilateral. Even when the subject is very emaciated a difference between the two sides will be found in the volume and consistency of the supra-spinatus, trapezius, and pectoral muscles, and sometimes of the deltoids. Muscular atrophy is an early sign, but is not a primary sign, of phthisis. Its value consists in that it draws attention to the affected apex and confirms the diagnosis at a time when only modified respiratory sounds without adventitious sounds are present and the disease can only be suspected. The atrophy in advanced cases affects more or less generally the muscles of the shoulder; in the beginning, on the contrary, it is partial. Sometimes the supra-clavicular hollow is more pronounced on the affected side, sometimes the sub-clavicular plane is retracted, and sometimes the supra-spinous mass is less full than on the other side. A source of fallacy is that the muscles of the left shoulder are generally less developed than are those of the right; but a perceptible difference, especially in the form of the "partial" atrophy described above, constitutes a presumption in favor of phthisis. The fact that the right side is generally first affected, or most affected, in phthisis increases the value of the symptom of muscular atrophy. As to the pathology of this condition, it seems to be analogous to muscular atrophy of arthritic origin. The following cases are examples of its value as a symptom. Case 1. A man aged 38 years, complained of cough and loss of flesh. At the left apex there was slight dulness, inspiration was jerky, and expiration was prolonged. In spite of the general emaciation, palpation revealed a marked difference between the two supra-spinatus muscles; the left was much more atrophied than the right. The tuberculosis made rapid progress, and ended fatally. Case 2. A woman, aged 44 years, came under observation. A year previously she had abundant hemoptysis. At the right apex respiration was scarcely prolonged, and at one point in the supra-spinous fossa fine sub-crepitant râles were heard. On the left side the supra-spinatus muscle was in well-marked relief; on the right the supra-spinous fossa was flattened. The sub-clavicular and supra-clavicular fossæ were more marked on the right side than on the left. A year later there were signs of extension of the pulmonary disease, but the appearance of the muscles remained the same.

CASTOR OIL IN NEURALGIA.

A number of writers have called attention, during the past year, to the good effects of castor oil in neuralgia. Ochsner was the first to use it in this country, though it is said to have been first used by Gussenbauer, of Vienna, in 1886. He had a patient being prepared for an operation for neuralgia. He was given castor oil and cascara to clear out the bowels and the patient was so much improved the next day that the operation was postponed and the treatment continued. The patient recovered entirely without the operation. Since Ochsner's report, Moyer, Parks, Knotts and others have reported cases in which the remedy had a most happy effect. It is to be hoped that a number of physicians will try this simple remedy.

The action of castor oil in neuralgia seems to be apart from its cathartic effect, as the use of other cathartics are not attended with the same results, and the good effect of the oil is secured without producing purging. Castor oil is such an old-fashioned, simple remedy, with a very disagreeable taste, that people are not very willing to take it, but a patient suffering with severe neuralgia is usually willing to take anything holding out a promise of relief.

It may be given in capsules, which is a rather expensive way, or in a mixture.

According to Merck the following makes a palatable preparation:

Saccharine	gr.	12
Ol. gaultheriæ	♏	20
Alcohol	ʒ	4
Ol. ricini	O	1

In the case reported by Knotts the following mixture was used:

Ol. ricini	℥	3
Glycerine	℥	3
Tinct. opii camph	ʒ	6

M. Sig. Teaspoonful at bed-time.

The patient took this every night for two months, during which time she only experienced one slight attack, though she had suffered for years under many other forms of treatment. In most cases the daily dose should be more than in this case.

Moyer says from one to two ounces should be taken every day, and he thinks it can be best taken in a glass of effervescent ale. No matter what the method of administration is the patient should get at least one ounce daily, and it is more or less immaterial just how it acts so long as it relieves the suffering of the patient.

In your next case leave off morphine and the coal tar preparations and put the patient on a course of castor oil.—*Charlotte Medical Journal.*

ADMINISTRATION OF QUININ TO CHILDREN.

H. B. Sheffield, in *Med. Times and Register*, recommends euquinin, which is a perfected and practically tasteless preparation, to be given children, as it is a palatable preparation. It may be prescribed in simple syrup. It has the further advantage over quinin in being less apt to produce nausea and tinnitus. For grown-up children he prescribes the following:

℞	Quininæ sulphatis	gr. xxx	2
	Acidi sulphurici dil.		
	Ess. menthæ piperitæ, āā	ʒ ss	2
	Syr. yerbæ santæ comp., q. s. ad	℥ iii	96

M. Sig. Two teaspoonfuls every three hours.

He gives iron in the following combinations:

℞	Vini ferri amari		
	Elixiris aurantii, āā	℥ i	32

M. Sig. One teaspoonful three or four times a day; or

℞	Ferri et ammon. citratis	gr. xv	1
	Spts. vini gallici	℥ ss	16
	Essence pepsini	℥ i	32
	Syr. simplicis q. s. ad	℥ ii	64

M. Sig. One teaspoonful three or four times a day; or

℞	Tinct. ferri chloridi	ʒ i	4
	Glycerini	℥ ss	16
	Syr. zingiberis	℥ i	32
	Aquæ, q. s. ad	℥ ii	64

M. Sig. One teaspoonful three times a day after meals.

—*Jour. A. M. A.*

VOMITING AFTER CHLOROFORM AND OTHER INHALATION ANESTHETICS, WITH A SUGGESTION FOR ITS PREVENTION.

L. Lewin is of the opinion that the larger share of the nausea following the use of general anesthetics is gastric rather than central in its origin. A considerable amount of the anesthetic is undoubtedly swallowed, either dissolved in the saliva or in vapor, and a very appreciable irritation of the gastric mucosa follows. Two methods suggest themselves for the prevention of this effect—one preliminary anesthetization of the lining of the stomach, and the other the introduction of some substance which shall act as a protective to the stomach wall. The first object may be attained by the administration of a considerable quantity of dilute cocaine solution, while mucilages of acacia, tragacanth, or Irish moss introduced immediately before the anesthesia is begun would undoubtedly protect the nerve endings and prevent the irritating action of the aerial vapor.—*Deutsche Med. Wochenschrift—Med. Record.*

Oil of gaultheria given internally and employed locally mixed with vaseline has proved to be a good remedy in chorea, even in those cases when distinct rheumatic symptoms were not present.—*Journal Med. & Science.*

FRONTAL HEADACHE AND IODIDE OF POTASH.

Since there are various forms of headache, and since the remedy that will relieve one patient will utterly fail to relieve another with seemingly the same kind of head-pain, it is necessary that the physician should be armed with a variety of remedies. For some time past we have found minimum doses of iodide of potassium of great service in frontal headache. A heavy, dull headache, situated over the brow, and accompanied by languor, chilliness, and a feeling of general discomfort, with a distaste for food, which sometimes approaches to nausea, can generally be removed by a two-grain dose of the potassic salt dissolved in half a wineglass of water, and this quietly sipped, the whole quantity being taken in about ten minutes. In many cases the effect of these small doses has been simply wonderful. A person who, a quarter of an hour before, was feeling most miserable and refused all food, wishing only for quietness, would now take a good meal and resume his wonted cheerfulness. The rapidity with which the iodide acts in these cases constitutes its great advantage.

We make no claim of originality in the use of the remedy. If we mistake not it was an Australian physician who first recommended it. The morbid condition here described is so very common, we would invite others to give this remedy a trial.—*Mass. Med. Jour.*

ACETIC ACID AS AN ANTISEPTIC.

Fürst (*Deutsche Aerzte-Zeitung*, June 15, 1900), speaks of the ordinary vinegar of the household as an efficient antiseptic for the hands of the surgeon in cases of emergency when no other disinfectant can be obtained. After washing the hands with hot water and a potassium soap, and rinsing in hot water, Fürst dips the hands into a warm solution of vinegar. The latter, in the strength of 0.6 per cent. to 1 per cent., inhibits the growth of some non-pathogenic germs and kills many pathogenic organisms.—*N. Y. Med. Journal.*

VALUE OF QUININE IN LABOR.

M. H. Fussell strongly urges that quinine be used in all cases of multiparæ, when labor has actually begun, and when the pains are slow and ineffectual and the os is fairly well dilated. In fifteen minutes to half an hour the pains will increase in frequency and strength. If there is no obstruction the labor will be speedily terminated. The employment of the drug will frequently obviate the use of forceps in uterine inertia. Necessarily it should not be used, and valuable time lost, when the failure of the head to engage is due to malpositions or to some disproportion between the sizes of the head of the child and the pelvis of the mother.—*Therapeutic Gazette.*

A NOTE ON THE VALUE OF INOCULATION AGAINST ENTERIC FEVER.

The author gives the results of the inoculations against typhoid fever of members of the staff and establishment of the Scottish National Red Cross Hospital, serving in South Africa. The members of the first section of the hospital, sixty-one persons in all, were inoculated twice at an interval of about ten days. In many cases the symptoms were just as severe after the second as after the first inoculation.

There was not a single case of typhoid amongst the personnel of this first section. The second section of the hospital, comprising eighty-two persons, was inoculated on board ship, but many of them only once. The material for inoculation had been on board for some time, and was not so fresh as in the first instance. Of the second section, one nurse and five orderlies had typhoid fever at Kroonstadt, of whom two died. Of these six, there were two inoculated (once) and three non-inoculated. Of the two who died, one had been once inoculated, the other had not been inoculated. A third section, consisting of twenty persons, were all inoculated and none of them had the disease. Examination by means of the Widal test four months later gave the following results: Of the first section, the blood of twenty-three individuals was tested, with positive results in twenty-one instances; of the second section, the blood of twenty-two was tested, with positive results in only two instances.

The results above given are very strong evidence in favor of the protective power of the antityphoid inoculation, when the inoculations are very carefully performed, and they point to the necessity for two inoculations at a suitable interval. During the period of five months that the hospital was stationed at Kroonstadt there were ninety-two admissions for enteric fever and eleven deaths. Of the ninety-two cases, fifteen said they had been inoculated, a few were doubtful, and about seventy had not been inoculated. Of the eleven deaths, one had been inoculated once, the others had not been inoculated. The author is convinced that the attacks of typhoid fever were, as a rule, much milder in the inoculated than in the non-inoculated, and the duration of the disease was much less.—*N. Y. Med. Journal.*

THE PROGNOSIS OF VARIOUS TYPES OF ALBUMINURIA.

Talbot Jones discusses the organic and the functional groups of albuminuria. The prognosis of the various forms of functional trouble he gives as follows: Cyclic albuminuria; the trend of opinion is toward regarding it as a manifestation of slight nephritis which may gradually pass into Bright's. The prognosis is therefore not absolutely unfavorable. Physiological albuminuria the author does not believe to exist. Infective and toxic albuminuria; the prognosis is that of the original disease. Gout and lead poisoning; the prognosis is bad, since it has been shown, both clinically and experimentally, that the albuminuria of these conditions is accompanied by such organic disease as is found in the granular kidney of Bright's disease. "Minimum" albuminuria of the French has an uncertain prognosis, because it often constitutes the first stage of Bright's disease. Anemia; the albuminuria in this condition is benign. Nervous disorders sometimes cause temporary albuminuria. The prognosis is that of the producing disease. Dyspepsia, highly nitrogenous food, some dermatoses, the blowing of wind instruments by the young, burns, cold bathing, prolonged mental effort, inhalation of sewer gas and excessive muscular exertion may all cause albuminuria. The frequent repetition of the last-named form can scarcely fail to terminate in chronic nephritis sooner or later.—*The Medical Examiner and Practitioner*, November, 1900.

PARALYSIS IN TYPHOID FEVER.

Dr. James Carslaw (*Glasgow Medical Journal*, March) recently reported to the Glasgow Pathological and Clinical Society two cases of paralysis in typhoid fever; the first he regards as a true complication of typhoid fever, due to the effect of the toxines of the *Bacillus typhosus* on the nervous tissues; the second he regards rather as a coincidence—an attack of hemiplegia in the course of typhoid, which might have occurred in connection with any feverish illness, or even without any other symptoms. The author says:

"Apart from the nervous symptoms, such as headache, sleeplessness and delirium, that occur in enteric fever, as in some of the other specific infectious fevers, there are many definite affections of the nervous system that may develop either during the fever or in the course of convalescence. In this respect enteric resembles epidemic influenza more than any other of the specific fevers. There may be mental symptoms, leading on to some form of insanity, or neurasthenic conditions may supervene. But there may also be definite system disease of the brain or of the spinal cord, or some inflammatory affection of the peripheral nerves. Cases of hemiplegia have been recorded by Murchison and others, and, though they may sometimes be due to embolism, it is said that hemiplegia may occur from arterial thrombosis, just as such thrombosis may occur in a limb and lead to gangrene. Disseminated sclerosis, disseminated myelitis, and anterior poliomyelitis have all been found as sequelæ, but the paralysis of enteric fever is probably most frequently due to a neuritis. This may be a slight affection, and in this form is probably not very infrequent, perhaps limited to the feet, and giving rise to the so-called 'tender toes of typhoid'; or it may be very extensive—affecting all the limbs, and associated with marked atrophy in addition to motor and sensory disturbances."

The first case, that of a young man twenty years of age, showed asymmetrical peripheral neuritis of both upper limbs. He had three weeks of grave fever with constant delirium and unconsciousness, and about a week later there developed severe pain in the right arm and especially at the shoulder, with numbness in the fingers, followed in two days by practically complete paralysis of the arm. Two weeks later the left arm followed suit. There was no history of venereal disease or rheumatism. The patient was temperate and had always enjoyed good health. Nothing abnormal in face, eyes or tongue; knee-jerks slightly exaggerated. The right deltoid was much more wasted than the left, while the right biceps was in good condition and the left much wasted.

There was pain on handling the affected muscles. The forearm muscles, especially the extensors, were very weak, and there was drop-wrist. There was an area on the right hand and forearm, including the right thumb and first two fingers, the outer half of the palm of the hand, the outer half of the back of the hand and for a distance of about two-thirds up the back of the forearm on its radial aspect, where there was marked anesthesia of tactile impressions. In the same area there was analgesia, loss of thermal sensibility, and absence of muscle sense, while this region was quite dry and cold, the other hand and the remainder of the right hand being flushed and perspiring. Tactile sensibility was good elsewhere, and there was, particularly in the left hand and arm, hyperalgesia to such an extent as to render it somewhat difficult to make a detailed electrical examination. There was some tremor of the limbs, and the muscles were unusually sensitive to direct stimulation. A biceps-jerk was easily elicited on the right side, but otherwise the reflexes of the arms were absent. There was some swelling of the hands, which might be partly mechanical in connection with the wrist-drop, though it might be related to the vasomotor disturbance evidenced by the flushing and perspiring. In regard to the electrical reactions, the reaction of degeneration was present in all the muscles of both shoulders and arms, though the increased sensitiveness of the patient made it difficult to state the results in figures. The method of treatment adopted was the application of the faradaic current to the muscles that responded to it, but the galvanic current to those that responded only to it. Considerable improvement had taken place.—*New York Med. Journal.*

THE RELATION OF APPENDICITIS TO DISEASES OF THE UTERINE APPENDAGES.*

By ALBERT L. BEAHAN, 18 Gorham St., Canandaigua, N. Y.

The occurrence of right-side pelvic disease when the question arises as to the diagnosis between disease of appendix and appendages, is frequent and sometimes requires fine distinction. Gross changes in the appendages resulting from disease co-existing with appendicitis are not uncommon. There has not been shown to be any close relation, except of proximity.

Functional disease, with disturbance of menses—a dysmenorrhea, exists as a law of cause and effect. Four cases in hospital at the same time recently, unmarried woman from seventeen to twenty-three years, had had irregular, painful menses. In one of these cases where an anomaly existed of the appendix passing for a short distance between the coats of the intestine, making a tight stricture, the menstruation had always been painful, and recently a local peritonitis had occurred at menstrual epoch. Our case records, other than these four, show that these are not coincidences.

A locked or torpid colon, with gas accumulations, an exaggeration of menstrual phenomena—increased pallor or muddy complexion, languor, pains, nausea or vomiting, pronounced nervous irritability, peevishness, with febrile rise to 99⅕ degrees F. or 100⅕ degrees F., during especially the latter part of the day, if a tender, enlarged appendix is found, establishes the diagnosis.

---

*Read at New York State Medical Society, January 29-30-31, 1901.

A recurrence of this group of symptoms at one or more succeeding menstruations may be expected. The thermometer showing a hovering of the temperature about the 99⅕ degrees F. mark, has come to be the clinching test. The tolerance of the female pelvis to disease should not mask the diagnosis, nor should a serious attack of appendicitis be permitted. Remove the appendix early. It will be a surprise to see its condition and a gratification that it was done.—*Medical Mirror.*

THE DIAGNOSIS OF CARCINOMA OF THE STOMACH.

It seems a dull iteration to emphasize the fact that there are few if any pathognomonic signs of disease. The careful clinician does not base his opinion upon one, or even upon several, but upon all of the phenomena that may be present in a given case, and these he endeavors to group in their proper relations, so as to make as nearly as possible a complete and comprehensive clinical picture. The diagnostic problem is often a most obscure and difficult one, and this is particularly so with regard to abdominal diseases. The desirability of promptness in diagnosis is most marked with reference to malignant disease, especially of the abdominal viscera, because only early extirpation may give relief. In the case of carcinoma of the stomach, for instance, to wait until a tumor is demonstrable is often to permit the time to pass when the best results can be hoped for from surgical intervention. Several symptoms have in late years been thought to possess diagnostic significance in this connection. Thus the absence of hydrochloric acid in the gastric juice was believed to point unequivoally to the presence of gastric carcinoma, but this evidence was soon found to be only of relative and not of absolute value. Then the presence of lactic acid and of the lactic-acid bacillus was considered diagnostic.

Recently it has been pointed out that the leucocytosis that occurs generally after a meal fails to appear in the presence of carcinoma of the stomach. This, however, is opposed by observations that have still more recently been reported, to the effect that, in addition to the reduction in the percentage of hemoglobin and in the number of red corpuscles, the colorless corpuscles also, especially the uninuclear, are increased. It has further been said that absence of digestion leucocytosis occurs likewise, though with less constancy, in cases of chronic gastric catarrh and of gastric ulcer. In order to reach an independent conclusion in this matter, Dr. Carstairs Douglas (*British Medical Journal*, March 16, 1901, p. 633) made a study of eleven cases of undoubted malignant disease of the stomach, the diagnosis being confirmed in all, either by the course of the illness and the localization of the tumor, or by the results of surgical intervention or post-mortem examination. Digestion leucocytosis was found absent in six, present in four, and inconstant in one. These results correspond closely with those related by Osler and Macrae in a monograph on "Cancer of the Stomach" published last year.

It thus appears that there is no constancy in the number of leucocytes after the taking of food in cases of gastric carcinoma, and that the absence or presence of digestion leucocytosis cannot be implicitly relied upon in the diagnosis. There is reason to believe that such leucocytosis, when it occurs, is dependent upon the activity of the digestive and absorptive powers of the stomach, and that it will fail to appear when the latter are impaired from any cause. Its absence, therefore, cannot be looked upon as an indication specifically of malignant disease, but of a state of the gastric functions that may or may not be associated with such disease. The danger of relying upon it solely or largely resides in the fact that the opportunity for successful operative intervention may thereby be permitted to escape. The clinician, therefore, must, here as elsewhere, weigh judicially all of the evidence in the case, neither ignoring nor placing too much stress upon any, and, after careful and deliberate study, reach a conclusion and act promptly in accordance therewith.—*Medical Record.*

HERPES GENITALIS.

W. F. Robinson states that caustics should never be used, as grave ulceration may follow their use. He employs the simplest antiseptic washes and observes cleanliness by immersing the parts in a warm boric-acid solution or bathing with the same twice daily and dusting afterward with the following:

℞	Europhen		
	Acidi borici, āā	℥i	32
M.			

Duhring recommends the following:

℞	Zinci sulphatis		
	Potassii sulphidi, āā	ʒ ss	2
	Spts. vini rectificati	ʒ i	4
	Aquæ	ʒ vii	28

M. Sig. Shake and apply frequently.

—*Journal A. M. A.*

The Proper Way to Give a Hypodermic.—Pick up the entire fleshy mass between the skin and the bone in the less tender part of the upper limb, the back upper arm or shoulder, and push the needle directly through at right angles to the skin. It should be done with a quick stab, and made to enter the muscle mass. The fluid is then gradually pushed home, after which the needle is withdrawn quicker than it went in, the puncture site being massaged for a moment for the double purpose of obliterating the needle track and promoting absorption of the injected liquid. Try this method once, and you will never want to go back to the other. The patient does not mind it. We have never had an abscess in twenty years' work. It is the only right and least painful way of giving a hypodermic injection.—*Med. Council.*

GAILLARD'S MEDICAL JOURNAL.

A MONTHLY JOURNAL OF MEDICINE AND SURGERY

Scientia et Veritas Sine Timore.

PUBLISHED BY THE NEW YORK MEDICAL PUBLISHING CO.,
116 Nassau Street, NEW YORK.

All communications, of either business or editorial character, should be addressed to Gaillard's Medical Journal, 116 Nassau St., New York.

Articles for publication will be received with the understanding that they are contributed exclusively to this journal. Reprints will be furnished at actual cost, orders for which should accompany the manuscript. Authors of accepted articles may receive twelve copies of the issue in which they are published. Necessary illustrations will be furnished without expense to authors when suitable drawings or photographs are furnished.

EDITORIAL.

The Christian Science Fad. Of late the lay press has been filled ad nauseam with articles concerning the doings of the so-called Christian scientists, a sect whose practices are neither Christian nor scientific. In several cases that have reached the public notice disastrous results have followed the application of what are termed "Christian science principles," patients having died for lack of proper medical attention, and in one case in particular helpless children suffering from diphtheria were sacrificed to the blind and unreasoning belief of the parent, that they could be cured by the mummeries of this recrudescence of the black art.

That such a state of things can exist in this era of progressive enlightenment is but an evidence that the love of the supernatural and mysterious has not yet been eradicated from the human breast.

That our laws are so formed as to permit the practices of Christian scientists to endanger the lives of innocent children shows that we have not yet learned to properly discriminate between liberty and license.

In reviewing the legislation proposed and acted upon in one State alone, that of New York, during the past six months one cannot but be forcibly impressed with the fact that we are most oppressively burdened with an infinity of vexatious legislative enactments upon the most trivial details, while really serious matters are neglected. For instance, the honorable, the Senate and Assembly of the great State of New York have solemnly declared that it shall be unlawful for any butcher in New

York city to keep his shop open on a Sunday. This same august body, however, declined to enact a measure requiring the practitioners of Christian science to submit to the same regulations as are imposed upon the members of the medical profession on the ground that the measure in question proposed an invasion of the rights of the individual, a contention put forth by that prince of American humorists, Mark Twain.

Had Mark Twain but studied the calendar of the body, before which he appeared as a champion of the rights of the individual, he would undoubtedly have taken up his abode permanently at Albany, for that calendar fairly bristled with bills vastly more restrictive of individual rights than was the Bell bill which he appeared to oppose. Indeed the eminent humorist was sadly amiss in his arguments for the logical objections to the practice of the Christian scientists are wholly apart and aside from any possible interference with the personal liberty of the individual. It is true that the Bell bill which he opposed was faulty, going further in the direction of restrictive legislation than was desired by many of the more thoughtful and conservative members of the medical profession, and we believe that it was largely these faults rather than the senseless clamor of its opponents that eventually killed the measure.

Our laws say that suicide is a crime. If the suicide should select a passive instead of an active means for attaining this end, is the law any the less transgressed? Should a person die because of a wilful refusal to eat, he could undoubtedly be considered as having committed suicide, wherein is there any essential difference between a refusal to take proper food and a refusal to take proper medicine? There is none, and therefore the individual who dies as a result of a failure to take proper medicines through his own wilful perversity is, to all intents and purposes, a wilful suicide, and a persistent refusal to take proper medicine might be construed as an attempt at suicide; an offense which is punishable with fine and imprisonment in the State of New York.

There are many, however, who deny the right of the State to impose a punishment for an attempt at suicide and this whole phase of the subject may be overlooked since there are broader grounds upon which to oppose Christian science and its practices—for with its doctrines we have no concern. The broad general ground upon which all may consistently oppose the practices of the Christian scientist is that in permitting any one to practice medicine or anything which purports to be a healing art who is not skilled in diagnosis, there is a constant danger that through failure to properly diagnose some contagious or infectious disease, the lives of an entire community may be put in danger. While we may permit the individual invalid to exercise his own judgment as regards the particular kind of treatment or form of humbuggery to which he is to subject himself, we cannot consent to his subjecting the community in which he resides to the danger of infection. It is upon this ground then that the most potent argument can be based against permitting the practice of Christian science as a healing art, and we heartily congratulate late Judge Lumpkin of the Supreme Court of the State of Georgia on the soundness of his judgment in refusing to issue a charter for a Christian scientists' institute in Atlanta, on the ground that the practice of Christian science is the practice of medicine, and under the laws of the State of Georgia can only be conducted by duly qualified and licensed physicians. It is not so much what the Christian scientists do that is objectionable; it is what they keep the patient from doing. No possible harm can result from any amount of absent treatment, but the danger lies in that they prevent the patients from having proper medical attendants.

THE CANCER GERM.

Dr. H. R. Gaylord, of the University of Buffalo, will publish early in May in the *American Journal of Medical Sciences* a paper giving a full description of a protozoon, which he believes to be the cause of cancer. The paper will contain the data upon which this belief is based. Dr. Gaylord has made extensive experiments in the lower animals, seventy-two of which he has inoculated with cultures originally derived from human patients and cultivated outside the human body, and in every case some characteristic lesion resulted. While the histological findings in the seventy-two inoculated animals are reserved for later publication, the author is confident of his ability to fully establish his claim. Dr. Gaylord has the reputation of being an accurate and skilled worker in bacteriology, and should his claims be supported he has made a contribution to science of the very first importance. It is somewhat unfortunate, however, that Dr. Gaylord's discoveries should have reached the public through the medium of the lay press prior to its publication in the professional press, our experiences in the past having taught us to accept with a certain degree of reserve those startling scientific discoveries, information of which first reaches us through the medium of the yellow press.

HAVANA FREE FROM YELLOW FEVER.

The fact that Havana has been wholly free from yellow fever for more than a month shows the possibilities for good which lie in sanitary science. In his official report for the month of March, Major Gorgas, of the United States army medical service, who is acting as the chief sanitary officer of the city of Havana, directs attention to this very interesting fact with a commendable pride in the results achieved by two years of American control. It is not alone, however, in the matter of general sanitation that so much has been accomplished, but the very latest advances in science have been utilized in the effort to suppress this scourge of the south, and Major Gorgas attributes much of the credit for the freedom from yellow fever from the results of a systematic war upon mosquitos, for he seems to have been thoroughly convinced of the accuracy of the observations which indicate that the mosquito is the bearer of the yellow fever germs. as it has thoroughly demonstrated to be of the germs of malarial poisoning. Not only has yellow fever been, at least for the time, exterminated, but the general sanitary condition of the city has been so much improved that the death rate is now lower than in any of the gulf coast cities and quite as low as that in most of the smaller cities of the Atlantic seaboard. Indeed, so great has this improvement been in Havana that we feel that this change alone is a sufficient reward for all the blood and treasure expended by the United States in rescuing the island from Spanish dominion. Whatever may be the future political history of Cuba it is essential that the United States Government be in a position to insist upon a rigid enforcement of the sanitary regulations which have proven so efficient during the two years of military occupancy of the island. With Havana free from yellow fever our gulf coast cities will be spared a most onerous burden which has been entailed upon them from year to year by yellow fever or by the fear of yellow fever.

Now that the summer approaches, the old-time question of quarantine and its regulation will undoubtedly recur. The report of Dr. Gorgas on the absence of yellow fever from the city of Havana constitutes a most important contribution to this question, for if the destruction of mosquitoes in infected districts furnishes an effectual means for preventing the spread of yellow fever, the quarantine question will soon be a thing of the past so far as this particular disease is concerned. Instead of a commerce destroying paralyzation of intercourse, we shall have a wholesale co-operation in the destruction of mosquitoes, which will, if the new theories be proven correct, not only put a stop to the spread of yellow fever, but will also prevent the malarial diseases which are transmitted through the medium of the mosquito. We can hardly expect any immediate and widespread adoption of this system of preventing disease, for even after its efficacy has been demonstrated to the satisfaction of all scientific minds, some time will be required in which to educate the general public to appreciate the full value and importance of the new method of combating this scourge of the South. In the meanwhile the health reports from Havana will be anxiously watched for and carefully scrutinized by every physician in the South.

GAILLARD'S MEDICAL JOURNAL.

VOL. LXXIV. NEW YORK, MAY, 1901. No. 5.

UTERINE FIBROIDS.

By HOMER GAGE, A.M., M.D., Worcester, Mass.,
Surgeon to Worcester City, Memorial and St. Vincent's Hospitals.

The frequency with which fibromyomata occur in the uterus has always made them a subject of great interest as well as great importance. Fortunately they are often unassociated with any serious discomfort, and remain undetected during the lifetime of their possessor. How often this is true will be appreciated when we consider that from the study of a very large number of autopsies Boyle concludes that they are present in 20 per cent. of all women over thirty-five years old, while in women of fifty Kolb estimates their occurrence at 40 per cent. On the other hand, Faultain examined the records of 2,230 gynecological cases at the Edinburgh Royal Infirmatory, and found that in only 8 per cent. was fibromyoma the assigned cause of their condition. At the Memorial Hospital for women and children in this city, out of 1,724 gynecological cases 131, or 7.6 per cent., were due to the presence of fibroid. A somewhat larger percentage might be found in other localities and in the private records of specialists to whom were referred only the severer cases, but the apparent discrepancy in these figures, it will, I think, be generally admitted, is to be explained by the very large number of cases in which the growths never attain any considerable size or give rise to any special discomfort. The mere presence of such a tumor accidentally discovered need not, therefore, be the occasion of any alarm, nor should it be made the excuse for surgical interference. On the other hand, fibromyomata may undergo degenerative changes that imperil the life of the individual or give rise to symptoms that place her in a condition of chronic invalidism. The discrimination between those cases which can safely be left alone and those which ought to be surgically treated constitutes a problem of the greatest interest and importance, while it is almost equally important and difficult to make a choice among the various measures proposed for their relief.

With regard to those fibroids which give rise to severe and exhausting hemorrhages (and this includes nearly all of the submucous as well as many of the interstitial forms), there is little opportunity for any difference of opinion. Some active interference is almost always necessary—always if it cannot be readily controlled and progressively diminished by the use of ergot, hydrastis, and similar uterine hemostatics. Interference is equally demanded in the rapidly growing forms. Rapidity of growth suggests at once the possibility of cystic or other degeneration, is apt to interfere with the natural duties and activities of the patient, and very likely to cause early impairment of her general health. It is true that this growth may diminish or even stop naturally at any time, but in view of the uncertainty of any such fortunate occurrence and the certainty of being able to deal more easily and more safely with a smaller than with a larger tumor, I think it unwise to postpone operation. Persistent pain, interference by reason of its size with the functions of bladder or rectum, and ureteral obstruction, are less common, but equally positive, indications for surgical intervention. I believe the moral effect of the knowledge of the existence of such a tumor on the part of the patient is oftentimes a very important factor in determining the necessity of operation. Upon some temperaments the knowledge of its existence, provided it were otherwise harmless, would have little influence, but upon others it alone would be sufficient to cause a state of permanent invalidism. I am well aware that this is an indication which may easily be made the excuse for operating in every case, but although liable to abuse, I am convinced that at the hands of a careful, conscientious operator it is a factor always worthy of consideration. Menstrual irregularities and dysmenorrhea, and the multitude of reflex disturbances that are sometimes rightly and perhaps as often wrongly attributed to the presence of fibroids, constitute problems the correct interpretation of which must always be among the most puzzling and most difficult duties of the physician. They are often the principal symptoms for which the patient seeks relief. When they are the only ones, unless their connection with the growth seems very clear, all reasonable means should be exhausted before advising its removal.

It has always been the custom to consider the age of the patient as an important factor in determining the necessity of operation, and it is perhaps as true now as ever that the younger the patient, other things being equal, the stronger the indication for surgical interference. On the theory that the growth of fibroids ceased with the menopause, it has been commonly held that if a patient has approached somewhere near the time when the menopause should be expected, she should be made as comfortable as possible by palliative measures or by simple surgical expedients, and thus tided along until nature shall have effected the cure. Further investigations, however, show that this is by no means always true, that fibroids continue their growth independently of the menopause. Kattmann, in a study of 400 cases, found that in nearly 25 per cent. neither climacteric nor menopause had any hindering influence on their growth. This is especially true of those which have undergone cystic degeneration. Another factor of almost equal importance in this connection is the effect of fibroids to delay and prolong the menopause, an effect particularly trying to the patience as well as to the strength of the patient. In view of these possibilities, I have felt that age should be given a place of very minor consideration in determining the question of operation, and have preferred to decide that question upon the evidence derived from its history and symptoms in the way I have already referred to, and without any special reference to the patient's age—the age of the tumor, its activity and its influence seem to me very much more important than the age of its possessor.

In a very hurried and general sort of way, I have rehearsed the chief factors upon which I should decide for or against operation in any given case as it presented itself to me. When surgical interference has been deemed necessary, one is brought face to face with the problem of choosing which of several methods is best adapted to each individual case. It would be difficult here, as in most surgical problems, to lay down hard and fast rules for our guidance. I do not intend to try to do that, but I thought it would be interesting, if not profitable, to take up my own experience with the different methods of operating, their results, and some of the impressions that experience has made upon me. I find that I have dealt with uterine fibroids by dilatation and curettement, by removing submucous forms piecemeal through the dilated cervix by tubo-ovariotomy, by hysteromyomectomy (vaginal and abdominal), and by myomectomy. In all there are fifty cases, with three deaths. The ideal operation would be one that was at once safe and free from permanent mutilation. Dilatation and curettement answers both these requirements, and is the simplest of the various surgical procedures which we have to consider. It is undertaken only when hemorrhage becomes a factor so important as to demand relief, and yet not sufficiently severe to require more radical interference. I have resorted to it in five cases. In one, a woman forty-three years old, whose periods of flowing were longer than the intervals, a very small fibroid was found at the fundus and scraped away. There has been a very decided improvement in the matter of hemorrhage, but smaller interstitial nodules have since enlarged so much as to almost fill the pelvis, and give rise to pressure symptoms causing great annoyance. I think it not improbable that further interference will be necessary, unless the menopause, which ought to come soon, shall arrest their growth. In a second case, in addition to curetting, I steamed the uterine cavity according to the method of Johnson, of Boston, two periods of forty seconds each, but though there were no subsequent hemorrhages, the brown, watery discharge which had existed for several months continued as before.

Microscopical examination of the scrapings in this case, by Dr. Baker, led to a suspicion of their malignant origin, and the uterus was subsequently removed through the vagina. Its section disclosed a fibroid of the interstitial variety situated in the fundus about as large as a robin's egg. The degenerative changes in the endometrium were of the chronic inflammatory type, not malignant. The patient made a prompt recovery, but remains in a state of extreme mental depression, which has existed ever since the uterine discharge first appeared. In this case all the symptoms, discharge, hemorrhage and mental depression, had come on years subsequent to the menopause. A third case returned to the hospital with request for removal of the tumor. The symptoms seemed hardly to justify so radical a measure, and her request was denied by my colleague who saw her at that time, and she has since been lost sight of. The other two cases were relieved of their symptoms, but their subsequent history after two or three months is unknown.

One of the cases in which I removed a submucous fibroid through the cervix had been previously curetted with little or no benefit. As a means of gaining time—as in waiting for the menopause, or in preparing the patient for a more serious operation—curettement undoubtedly has its advantages, but the results are often unsatisfactory, and are usually followed by a recurrence of the symptoms. It seems to me to be indicated chiefly in young women, when it is our duty to make every effort to preserve the uterus and appendages. The hemorrhage may be due to a small submucous fibroid, which may be removed or its subsequent delivery *per vaginam* favored by the curette. But its field of usefulness is, it seems to me, pretty limited, and likely to grow smaller. Closely allied to this is the operation for the removal of those fibroids which project into the uterus by dragging them down through the dilated cervix and cutting them away piece by piece. I have had thirteen of these cases, and while there has been no death, I have had serious septic complications in several of them. Besides general sepsis, I have had in three cases a greater or less degree of phlebitis affecting the femoral vein. Some of these cases come to us already septic from the sloughing of the superficial portions of the tumor, others become septic through the sloughing of the shreds of tissue which it is almost impossible to avoid leaving behind in the uterus. Occasionally, as in two of my cases, the removal of the submucous tumor is but a partial relief owing to the presence and subsequent growth of other nodules. In spite of its imperfections, however, this will always be the option of election in the great majority of these cases. They are the tumors that give rise to the most severe hemorrhages, and often to the most severe pain. The operation does not mutilate, and in the majority of cases gives permanent relief. Care must be taken to avoid cutting through the uterine wall, and it may be necessary to secure additional room by splitting the cervix on each side; otherwise the technique is simple, though the time necessarily consumed is apt to be very exhausting both to patient and to operator.

To prevent hemorrhage, and produce an atrophy of the fibroids as well as of the uterus, Tait in 1892 proposed to secure an artificial menopause by the removal of the tube and ovaries. The safety and simplicity of the operation at once made it very attractive, so attractive that it was soon resorted to by all sorts of operators for all sorts of conditions. The reaction caused by its abuse, and the improvement in the technique of the more radical operations, have since pushed this into the background. I have performed it three times for the relief of fibromyomata. First in 1892, upon a Swedish woman forty years old, who complained of pain, irregular and profuse menstruation, dyspnea on exertion, nausea and headache. The blood count showed a profound anemia, and there was a systolic murmur at the apex of the heart. Surgically she made an excellent recovery, but ten days after the operation began to show signs of mental derangement, and a month later was committed to the Worcester Lunatic Hospital. Fourteen months later she was sent back to Sweden by the State authorities, and at that time was reported by the hospital physician to be " much improved and in a fair way to recover." Fortunately such an outcome is not common after removal of the uterus or its appendages, perhaps not more common than at the natural menopause, but common enough to be a wholesome check on its too universal adoption.

My second operation was in 1893, upon a nurse thirty-three years old, who, though dependent upon her own work for a livelihood, had been obliged to give up nursing on account of severe pain and hemorrhage at the menstrual periods. Her recovery was in every way satisfactory. She has been well, strong, and abundantly able to practice her profession ever since.

The third case was in 1899. The patient was forty years old, and had had a submucous fibroid removed seven years before at the Memorial Hospital. Since then she had been delivered of a living child, but for two years had been subject to severe and exhausting hemorrhages, until she was unable to leave her house or attend to her household duties, and was much of the time confined to her bed. The tumor seemed to be interstitial, and to occupy the fundus of the uterus. She was so extremely anemic, and so very weak, that I did not dare attempt hysterectomy. I was able to remove the tubes and ovaries easily and rapidly, without any loss of blood and without shock. The result was exceedingly satisfactory. She began to gain at once and gained rapidly in flesh and strength. In a few weeks her health was restored, and she has remained well.

The mortality from this operation in Tait's hands was, for the first 272 cases, 4½ per cent. I think, however, that the mortality to-day ought not to be more than one or two per cent. at the most. Forty-one out of fifty of his cases that were followed up for six years were in perfect health, and in fourteen of them the tumor had entirely disappeared. The occasional persistence of menstruation after the operation, and the knowledge that after all the cause of the trouble has been left behind, with the wonderful improvement in the technique and consequent safety of hysteromyomectomy, have had a tendency to cause tubo-ovariotomy to be wholly overlooked. In just such cases as the last one which I have recited, I believe it possesses very great advantages over the major operation. It can be done more rapidly, with less hemorrhage and less shock. Whenever these factors are of especial importance, and the appendages can be readily isolated, their removal alone is surely worth considering.

I have removed the uterus twice by the vaginal route when it has contained fibromyomata. In one case, which has already been mentioned, the operation followed an unsuccessful currettement, and it was undertaken in the expectation of finding adenocarcinoma of the body of the uterus. The fibroid was unexpected. The other case was undertaken for a supposed carcinomatous degeneration of the cervix in September last; three pedunculated, subperitoneal fibroids as large as walnuts were found attached about the fundus. She made a good recovery. Neither of these operations was undertaken primarily for the relief of the fibroids, and as the vaginal route has never been a favorite with me, I should never choose it for that purpose. It is applicable only for the removal of small tumors, and to my mind is not as exact nor as satisfactory as the operation from above.

I have performed abdominal hysteromyomectomy twenty-five times, with three deaths; two of these were the fault of the technique of the operation. The first was that of a woman thirty-five years old, who died of septic peritonitis on the fifth day after the removal of a six-pound tumor. The operation was uncomplicated, and as no autopsy was permitted, I am wholly at loss to account for the fatal result. It could occur, however, only as the result of some error in my aseptic technique. The second occurred in the case of a woman fifty-three years old after the removal of a tumor about as large as a grape fruit; death resulted from general sepsis, which had its origin in an abscess of the abdominal wall. There was no peritoneal or intra-abdominal infection, but the pus burrowed in every direction in a fat abdominal wall, and resisted all the attempts which were made to control it. The occurrence of the abscess was in itself evidence of infection, and whether attributable to unclean suture material or not, was wholly preventable. I have always felt, too, that a better appreciation of the possible dangers would have prompted freer openings at the first discovery of the trouble, and perhaps averted the fatal result. In any event, I think the accident very unlikely to be repeated. The third death followed an operation done a week ago to-day, in which I removed an ovarian cyst of very large dimensions, completely filling the abdominal cavity, and at the same time a fibromyoma as large as a baseball. The patient was a feeble-minded woman of forty-six years, who was very anemic, but seemed otherwise in very fair condition. She had no vomiting, no pain, no tenderness, and no distention, but failed steadily, both mentally and physically, and died on the fourth day. No autopsy could be obtained. I have since learned that for years she had been unable to pass urine voluntarily, and had been dependent wholly upon a catheter, and that the condition of mind was not natural, but had been gradually coming on for several weeks. The urine was of very low specific gravity, but contained no albumin. I have no doubt that she died from the effect of chronic changes in the kidneys, and that she really was an unsuitable case for operation.

Homans places the mortality after hysteromyomectomy at from 3 to 10 per cent. Doyen collected 147 cases, with a mortality of 4½ per cent. Grieg Smith had 41 consecutively successful cases, and many American operators have reported an equally low percentage of fatal results. These, compared with the mortality of 30 per cent. in 539 German cases operated on prior to 1890, show how much has been accomplished by improved technique in depriving the operation of its dangers, and widening the field within which it may be safely advised. From my own experience, I think I approach the operation to-day with as little fear as five years ago I felt about the simple removal of uterine appendages. It is true that adhesions or other serious complications may be encountered most unexpectedly, but their very presence means a serious condition without operation, and is therefore, relatively considered, no objection. My own method of procedure is to cut the broad ligaments between two clamps down to the attachment of the round ligament, divide the peritoneum over the uterus from side to side at this level and strip it back, keeping close to the uterus until I can feel the uterine arteries between the peritoneal folds, secure these with silk ligatures, and then amputate the cervix. I cauterize the divided uterine canal, secure the ovarian arteries and then the vessels of the round ligament, and finally unite the anterior and posterior layers of the peritoneum by continuous suture from one side of the pelvis to the other. The most important steps are, I think, the absolute control of all hemorrhages about the stump so that there shall be no accumulation of clotted blood in the space between the stump of the cervix and its new peritoneal covering, and the treatment of the uterine canal. During the past year I have tried whenever possible to leave at least one ovary, on the theory that it diminishes the shock of the abruptly induced menopause, but I must confess that I have failed to observe any noticeable difference in the results.

Its progressively diminishing mortality and its completeness make this operation almost ideal in its results when performed for the relief of symptoms definitely due to the presence of a fibroid tumor. It would be ideal if it were not for the fact that it unsexes the patient, and produces a condition which, though compatible with health, is contrary to the provisions of nature. This objection is of especial force in the case of young women under thirty years of age, and has been very strongly set forth in a recent article by Dr. Richardson, of Boston. Fibromyomata are, like lipomata, encapsulated tumors showing no tendency to recur, and the ideal way to deal with them would be by enucleation, just as one deals with the fatty tumors on the surface of the body. In this way their attendant symptoms would be relieved, and at the same time the functions of the uterus and its appendages fully restored. The operation of myomectomy has been generally and successfully employed in pedunculated fibroids, when the pedicle has been small. Should we not extend it still further to those sessile and interstitial tumors which are capable of enucleation? On this subject, in his last edition, Grieg Smith says that "Schroeder identified himself with the practice of enucleation of fibroids, and obtained fair results, but other surgeons have not been prone to follow his example. Theoretically it is admissible, but practically its mortality is high."

The only danger beyond that incurred in any intrapelvic operations is from hemorrhage, and the supposed difficulty of controlling the bleeding from the torn uterine muscle—simply a matter of technique; and every year is bringing additional testimony to the unsoundness of this objection. Kelly, of Johns Hopkins, has done much to extend the field of this operation, removing successfully in one case nine and in another twelve small uterine fibroids by enucleation. He says that "no more important advances can be made by the gynecologist in the immediate future than by extending the indications for myomectomy and narrowing the field of hysteromyomectomy." It is contraindicated in extreme anemia, when it is desirable to avoid a protracted operation, in the presence of extensive pelvic inflammation, and when the uterus is larger than a six months' pregnancy. Kelly says further that "with these few plain limitations, myomectomy within the proper age limit must always be the operation of election, and if hysteromyomectomy is performed, definite reasons must be given for selecting the radical instead of the conservative plan of treatment." As it is applicable only to the smaller growths, it must be undertaken early, and there should be no delay, especially in the case of young women, after it has been made perfectly clear that the fibroid is steadily increasing in size.

I have performed myomectomy now only six times, but with most gratifying results. I have thus far selected only the most favorable cases for its trial, but there has been no difficulty at all in controlling the hemorrhage. This is a pretty small experience, but it has been sufficient to convince me that the method is applicable to many cases in which, a few years ago, I should not have thought it possible, and has given me confidence to believe that a steady improvement in technique will still further widen the field for its practice, and will give us, at least in a very large number of cases, a safe, non-mutilating method of dealing with uterine fibroids.—*Boston Medical and Surgical Journal.*

THE CAUSES OF FAILURE OF COMPENSATION IN DISEASES OF THE HEART.*

By MORRIS MANGES, A.M., M.D.,

Professor of Clinical Medicine in New York Polyclinic Medical School; Visiting Physician to Mount Sinai Hospital.

To discuss the causes of the failure of compensation of the heart is by no means the unprofitable task it would at first glance appear, for the maintenance of life itself—and that too often during the critical periods of acute illnesses—may depend upon the proper appreciation of some of these causes. Too frequently we are unaware of the dangers which are lurking for patients with organic heart disease until some undue strains from acute illness, muscular overexertion, etc., warn us most emphatically of the real status. In pneumonia and nephritis death comes from the heart, and in all acute and chronic diseases the key of the situation lies in the myocardium. Another good reason for recognizing these causes is that from the information gained thereby we often obtain important therapeutic indications after digitalis and the other heart tonics will have lost their effects; so that we are thereby enabled indirectly to assist the enfeebled circulation by the relief of some of its collateral burdens.

Of still greater importance is this study to the thinking physician, since a clear conception of that ultimate crisis or crises to which all patients with organic cardiac diseases are finally doomed, may enable him to put off the evil day for a very long time; for compensation may endure for surprisingly long periods. Romberg mentions a case at the Leipsic clinic in which it was maintained for thirty-eight years, and Forler quotes another in which combined aortic and mitral lesions remained compensated for fifty-three years in spite of constant hard physical labor. It may not be amiss to mention that the average duration of compensation in one hundred and two cases, studied by Romberg, was seven years—a very good average when it is added that in one-third of these cases, from various causes, compensation was never established.

---

* Read at a stated meeting of the New York Academy of Medicine, January 3, 1900.

This discussion, however, is most difficult at the present time, since we are now going through a transition period in which many long accepted facts have been ruthlessly upset and have been replaced by others which, although apparently correct, have not yet been subjected to the crucial tests of time and experience. Indeed, the findings and the teachings of the new schools of Engelmann, Krehl, His, Romberg, and others are not universally accepted by all physiologists and pathologists. Many of the pioneer views of Traube and his school and the later work of Rosenbach still find numerous able defenders in spite of the radical claims of von Basch and his pupils, that there is no such process as that of compensation. The admirable work of Sherrington and other physiologists on the dynamics and physics of the heart and circulation, while they have shed much light upon many obscure phenomena, have not been grasped in their true significance. How far-reaching are these new views on cardiac physics may be comprehended from the admirable Lane lectures which have recently been published by Clifford Albutt. Likewise, perusal of von Leyden's address on the nervous mechanism and the autonomy of the heart muscle will afford much information on these most interesting subjects.

The consideration of these topics, although of very great importance to a proper and comprehensive conception of our subject, would require far more time than is at my disposal this evening. It need only be stated that the supreme importance of the muscle cells of the heart is clearly brought out, and that all else is of lesser significance.

Pathologists have also corroborated this, and it is, therefore, in the myocardium that we must look for the immediate relations of both compensation and decompensation, as the failure of compensation has been aptly termed by Romberg.

For a long time it was believed that the cause of decompensation lay in the undue distention of the myocardium, with subsequent fatty degeneration of the muscle cells. This view was upheld for a long time as the result of the influence of Stokes, Fridreich, Rosenstein, Strümpell, and others. Duclek was the first to doubt it, and it is now generally accepted by von Leyden, Strümpell, Fraentzel, Romberg, and others, that fatty degeneration is only of minor importance. This is also corroborated by Balint's experimental fatty degeneration in animals. Furthermore, the importance of an undue amount of residual blood being left behind in the ventricles or auricles as the result of valvular leakage is minimized by the observations of Roy and Adami, that the normal ventricles do not completely empty themselves during systole. Moderate leakage does not affect the healthy cardiac walls, and even undue distention may be successfully coped with by sound muscular fibers. But, as well described by Albutt, "the morbid results of dilatation lie not in the occasional stretching of a normal ventricle beyond the mean—this can be well met by the ordinary reserve energy, together with the stimulus of excess loading—but they lie certainly in such a persistence of excess as to exhaust the organ. Nutrition being unequal to the persistent importunity, tone yields to prolonged, excessive tension, and although hypertrophy for a time may stave off the impending failure, a restoration somehow of normal conditions must come about if the heart is to regain its equilibrium. While it is essential then to a useful life that the heart shall be thus adaptable to fluctuations of demand, even to extreme demands, yet, on the other hand, over a long period of time the work ought not to exceed a certain mean, the amount of which varies for each individual; for Mosso and others have shown that the rate of muscular fatigue, whether skeletal or cardiac, varies in different individuals. In one person temporary dilatation of a ventricle under incidental stress is rapidly overcome; in another the limit of specific elasticity, insufficiently guarded by tone, is passed and strain irremediable may be established. The mutual play of tone versus dilatation is then of the first importance in all men; but tone varies in all men constitutionally, and in the individual with fluctuations of his health. Under no circumstances is tone more profoundly weakened than under the influence of the toxins of the infectious diseases."

That the normal heart can readily deal with acute dilatations has repeatedly been demonstrated in cases of overstrain from mountain-climbing, etc., the most striking examples of which have been the X-ray demonstrations of T. Schott. But the heart walls of patients who have had or have organic valvular disease are not normal, as has been demonstrated by Letulle in 1889, and much more elaborately in 1890 by Krehl and his school. Letulle showed that in hypertrophy the interstitial connective tissue increased as well as the muscle fibers; and he assumed that this proliferation of connective tissue caused a fatty degeneration of the muscle fibers. Tangl, in experimental hypertrophies in animals, showed that such an increase of connective tissue does not occur, but the importance of his findings is lessened by the findings in diseased human hearts, to be mentioned directly.

Krehl's elaborate studies with serial sections on hearts from patients with valvular disease threw a flood of light upon the relations of compensation and its failure. He found marked myocardial changes with increase and subsequent contraction of the connective tissue between the muscle fibers, with occasional focal destruction of the parenchyma. These changes were not found diffusely by Krehl, His, and Romberg, but they occurred only in small areas or foci and followed a necrosis of the muscular fibers; they were usually the result of some change in the nutrient blood-vessels, or they would follow inflammation of the endocardium or pericardium. In acute infectious diseases it appeared as if the acute interstitial inflammation resulted directly in the formation of new connective tissue.

Krhel, His, and Romberg studied the changes not alone in valvular diseases, but also in acute infectious diseases, pericarditis, heart strain, many intoxications, etc., and found these varying degrees of myocardial changes in foci in different parts of the heart.

Sack claimed that the auricles were most frequently involved, and regarded it as a compensatory phenomenon to strengthen their walls.

Dehio claimed that in addition there was also a diffuse process, a myofibrosis, in which there were diffuse new formations of connective tissue throughout the entire heart, which were interfascicular as well as interstitial. He claimed to have found this in the various cardiac lesions, and especially when the increased work of the heart had caused hypertrophy and dilatation of the entire organ or only a part of it. It was the stretching to which the hypertrophied muscles had been subjected which was the cause that the weakened muscular fibers gradually disappeared, and, as a reparatory act, connective tissue replaced them, the contractile powers of the muscle cells being replaced by the elastic force of connective tissue. This process was most marked in the auricles, since their weak muscular walls could least stand dilatation. Thus the dilatation is the chief cause of the myofibrosis. He also admitted that diffuse connective tissue might occur in the acute infections. He also found myofibrosis in senile hearts, but believed that coronary arteriosclerosis was the chief cause.

Hochhaus and Reineke studied fourteen diseased hearts (senile, valvular, and acute and chronic infectious), but failed to find this diffuse myofibrosis in six cases of valvular disease. Their findings in these cases corroborated those of Krehl's school, that there are distinct focal changes in the parenchyma and interstitial connective tissue. They direct especial attention to the occurrence of focal changes, which being connected neither with the endo- or pericardium or blood-vessels, must have been the result of the acute infections (acute articular rheumatism, etc.) which caused the primary organic cardiac diseases. The foci were found in order of frequency in the left ventricle, right ventricle, and the auricles.

It is to be added that these views of Krehl and his school have been rejected by Bollinger, Rieser, and others.

Finally Ott claims to have found distinct changes in the cardiac ganglia in cardiac stasis and hypertrophy, and Bálint in experiments on animals found that he vagus was of importance in determining the time when decompensation set in after experimental destruction of the aortic valves.

To sum up briefly the various pathological conditions reported above, one is justified in stating that hearts which have been attacked by actual organic valvular disease from any cause no longer have an absolutely normal myocardium, since the latter has been involved in its parenchyma or interstitial tissue, or both, in various foci. Any defect in the valvular apparatus is compensated for a longer or shorter period by hypertrophy, which in turn is followed by changes in the parenchymatous muscle cells, or interstitial connective tissue, or both, or in the ganglionic cells or nerve fibers, or both, which may finally result in such a weakening of the heart walls that the heart is no longer able to propel the blood in normal amounts, as needed by the system at large. The causes of this breakdown may be either one or both, the distention of the cavities which results from leakage at the valves, or it may be due to defective nutrition of the myocardium from arteriosclerosis, anemia, chronic or acute intoxications, mechanical overstrain, or other causes, which will be discussed later on. But although this will explain why, *ceteris paribus*, a man with valvular disease will react more promptly and more markedly to a given insult, yet it is also demonstrated that if the nutrition of the heart is properly maintained, if the work which the heart must perform is properly regulated in amount and time, then these myocardial changes will in no way exert any deleterious action upon the individual, but may even be conservative to the heart as such, until the appearance of the arteriosclerotic changes, to which all hearts and all parts of the body must sooner or later succumb, since it must be distinctly understood that the reserve power of the hypertrophied heart is just as great as that of the normal organ; but if the causes of the hypertrophy are still active, then the constant call on its reserve energy, as already stated above, will result in the diminution of the amount at its disposal. Finally, while it is admitted that a hypertrophied heart is more liable to arteriosclerosis of the coronaries and chronic myocarditis, yet with proper care for the nutrition of the body at large and the work of the heart this may be controlled for a long time.

Viewed from the clinical side it may be said that the failure of compensation is not a clinical entity, nor does it represent any definite etiological or anatomical factors; but, to paraphrase Romberg, it represents the clinical course of various anatomical, dynamic, and functional influences which are always occurring in various combination, since it is not always the result of one cause acting alone, but very frequently of several acting in combination or succession. It will be found that these factors either produce dilatation of the chambers of the heart or impair the nutrition of its walls.

The most important of these causes may be grouped as follows, modifying the classification of Osler:

1. Failure of general nutrition of the body.
2. Disturbance of local nutrition of the heart.
3. Increased work of the heart.
4. Functional cardiac disorder.
5. Effects of improper treatment.

Failure of general nutrition is in its final results closely allied to the second group of local disturbances of nutrition, yet it is important to consider each separately on account of the differences in the etiological factors.

I. Of the general causes anemia is one of the most potent and common; it may result from poverty with its endless exposure, poor food, etc.; or it may be associated with obesity; or, far more commonly, decompensation may follow severe reduction cures. Many a compensation is shattered at Carlsbad and other resorts under the so-called guidance of physicians. How many more are wrecked by the patient's own efforts in Banting, thyroid medication, etc.! Far too many paunches are flattened, livers shrunken, and gall bladders cleansed, dyspepsias cured, vain women's figures restored to youthful lines and suppleness with the high sacrifice of cardiac compensation. Small wonder, then, that Carlsbad physicians are now sending their patients to Nauheim for the after-cure!

The chronic infections and intoxications, such as result from chronic nephritis, severe digestive disorders, tuberculosis, metallic poisons, are also important factors; gout, diabetes, and similar constitutional disorders are also potent causes in slowly producing changes in nutrition, which are finally indelibly impressed upon the heart.

More rapid in action are the acute infections, such as acute articular rheumatism, diphtheria, scarlet fever, typhoid fever, pneumonia, influenza, sepsis, etc. The most important of these are influenza in persons over forty-five years of age, with its marked general depression, and acute articular rheumatism. The latter acts in a twofold way, for besides the general effects of all infectious disease, which are already referred to above in Krehl's findings that the so-called "Herzschwiele" results directly from the acute infections, each successive attack of acute rheumatism may inflict further damage upon the structure of the heart. It is also to be noted that Schroetter and others believe that in some of the acute infections there are additional central disturbances which affect the vasomotor system, and thus indirectly influence the heart.

II. Disturbances of local nutrition of the heart. Of these causes coronary arteriosclerosis is by far the most important and far-reaching in its action. Insidious in its onset, silent in its slowly progressive action, it is most destructive in its effects upon the myocardium, and brings to light any defects in this structure; in consequence the reserve power is so diminished that the heart can no longer respond to the calls which are made upon it, and hence, unless the patient has been warned about his condition, he is apt to subject the organ to strains which may cause irreparable damage.

As the arteriosclerotic process is rarely limited to the coronary arteries, but is usually manifested in the aorta and the other arteries, the effects of atheroma of the aortic valves, arch of the aorta, chronic nephritis, are added to the burdens of the heart.

The other effects of chronic endocarditis and pericarditis are self-evident, and need no further discussion here. Of chronic myocarditis it need only be added that the special localization of the areas of degeneration may precipitate the occurrence of decompensation, as for instance when the auricles are especially involved, or the apex of the left ventricle, the latter being particularly marked in aortic regurgitation.

Hearts with valvular disease and hypertrophy are especially liable to these disturbances of nutrition, and respond to them more markedly since, as has already been stated, definite changes are established in the heart structure by the primary cause of the lesion.

III. Increased work of the heart. This may arise from a variety of causes, and may either be of transitory duration or may last for an indefinite period. It plays an important rôle in the causation of decompensation, and not infrequently is the means of telling a man that the condition of his heart is not what it ought to be.

Muscular overstrain, due to overlifting, undue mountain climbing, bicycle riding, and prolonged and violent athletic exercises, has been so fully discussed during recent years that it does not require much more than mention here. The damage inflicted by distended auricles and ventricles, ruptured heart valves, etc., may at first be equalized by the reserve force of the heart; but later on, if the insult is repeated too often, or if the structure of the myocardium has suffered, it can no longer do so and irreparable dilatation may result. It is to be noted that most of the changes occur in the right auricle and ventricle. If people would exercise with their brains as well as their muscles, as suggested by Schroetter, such cases would be less common than they are.

Parturition in women with valvular disease is closely allied to this class of cases, and the increased work thrown upon the heart has not infrequently led to an acute failure of compensation, which was fatal in a few hours or days; or there may be more or less complete recovery from the decompensation.

The work of the heart is also increased in many other conditions, among which may be mentioned pericardial adhesions, renal diseases and arteriosclerosis in general, obesity, chronic bronchitis and emphysema, large pleuritic effusions, pulmonary infractions, and other conditions which increase the work imposed upon the right heart.

More tangible and under more direct control are the effects of excesses in food, alcoholic stimulants, tobacco, etc. It will be observed that many of the above factors act injuriously in more than one way, and deserve the especial attention of physicians in the prophylaxis of decompensation.

IV. Purely functional cardiac disorders as causes of decompensation are rare; extreme mental emotions, such as fright, marked mental excitement or emotions, prolonged worry, may act in this way on account of the enormous rise in the arterial pressure which, according to Romberg, may follow them when they occur in persons with weak hearts. Deaths from broken hearts must be accepted as an actuality. These cases are usually due to idiopathic dilatation. "In some the condition is acute and the patient has dyspnea, slight cyanosis, cough, and great cardiac distress. Death may occur in a few days, or dropsy may supervene, and the case become chronic. Delafield has reported an interesting series of cases of this group" (Osler). Schroetter and others have also reported cases of this kind.

V. As a separate group may be placed those unfortunate cases—alas! too large in number—in which the failure of compensation is not due to disease but to the physician or the patient himself. I refer to the abuse and improper administration of cardiac drugs by doctors to whom the presence of a murmur is the signal for the prompt and heroic administration of digitalis, etc. The constant and uncalled-for demands upon the reserve energies of the heart by such means not infrequently precipitate cardiac failure. At present the abuse of the Nauheim method, Zander exercises, etc., in the hands of many physicians, is doing more harm than good in destroying compensation rather than in improving the condition of the heart. Following fads is one thing; judicious employment of these rational methods after comprehending their underlying principles is another. This is not theoretical, since I have seen such cases.

Lack of time has induced me to omit the narration of any special cases to illustrate these various causes of decompensation. I trust, however, that the underlying causes have been made sufficiently clear. As a corollary it follows that the treatment of heart diseases consists in much more than the observation of heart murmurs; that the heart muscle is the important factor; and that in the treatment of failure of compensation broad and comprehensive views, which include not only the condition of the heart itself, but of the entire body, can alone do the greatest amount of good to this class of patients.—*Medical Record.*

CAN TUBERCULOSIS BE EXTERMINATED?

By HERBERT C. CLAPP, M.D., Boston,

Visiting Physician to the Massachusetts State Sanatorium for Consumptives, at Rutland.

In the crusade which has been started in many parts of the world in recent years against this dread disease, a crusade which, to a great extent, owed its origin to the remarkable successes achieved in the German sanatoria, the first of which were conducted by the celebrated Brehmer, of Görbersdorf, and Dettweiler, of Falkenstein, one argument has often been advanced that by the adoption of the modern methods of combating it, this terribly destructive pestilence may within a comparatively few years be completely exterminated.

Now, while I trust I am as enthusiastic as any one for the general adoption of these methods of treatment and am proud of the distinction which our Commonwealth of Massachusetts has gained in being the first State in the world to establish a sanatorium for consumptives at the public expense, and hope to see the time come soon when every State in our Union will go and do likewise, and feel sure that the good results to follow will far more than warrant the necessary expenditure, yet I cannot be optimistic enough to believe that the disease is ever to be entirely stamped out (if so, not for many generations), and think that nothing is to be gained for this or for any other cause by an overstatement of the argument. My reasons are these:

It is now pretty generally acknowledged throughout the world that the special cause of phthisis is the bacillus tuberculosis, the rod-shaped parasite discovered by Koch, which probably oftenest gains an entrance to the system by the inhalation of dried and pulverized phthisical sputum, which in most parts of the world floats as dust in the air, in such quantities that it is taken in with the breath by practically everybody. In a small amount of sputum in an advanced case of the disease the germs are generally distributed with a prodigality only equaled by that of nature in producing seeds for the propagation of vegetable life. In the language of Micawber, literally "There are millions in it." This special cause, however, is powerless to act unless there be a certain predisposition to the disease, either inherited or acquired; in the latter case (by far more frequent) the susceptibility being developed under the influence of certain co-operating conditions which may properly be called the predisposing causes. Such are excessive confinement indoors in bad air, overwork, mental depression, poor food, moisture of the soil, some trades and occupations, generally debilitating conditions, etc.

On the other hand, these predisposing causes, including heredity, probably never produce phthisis without the fructifying influence of the specific cause, the bacillus. The co-operation of both is as necessary in the production of each case of the disease as is the co-operation of the human father and mother in the propagation of our race. Without this predisposition or diathesis, innate or acquired, any individual may breathe in, or swallow with his food, millions of the bacilli tuberculosis with impunity; while with this diathesis or predisposition, he will escape only if he can escape contact with the bacilli, which in most parts of the world is impossible for any considerable length of time. The old parable of the sower and the seed, some falling on good ground, springing up and becoming productive, and some on stony ground and perishing, is here particularly applicable.

Naturally two methods suggest themselves to one who is anxious to prevent or to cure the disease. The first is to destroy the germs either before or after they have entered the body. The second is to so modify the soil that they will refuse to grow in it; in other words, to prevent or remove the diathesis or predisposition by invigorating the system in every known way, so that its tissues will be sterile, so far as the growth of the bacilli is concerned, affording them no proper nutriment. The fertile soil having become sterile, the bacilli which are present die, and new ones, although ingress is easy, yet fall on stony ground and perish. The greatest success in the treatment of phthisis in modern times has been along the latter lines. The brightest hope for the future shines in the same direction.

The expectation of being able to find some medicinal agent to kill the germs after they have entered the body, although so fascinating to the imagination, has probably never yet been realized.

There is, in the opinion of most physicians, no known parasiticide which can destroy the bacilli *in situ* without at the same time destroying the patient. And even if we had some reliable agent of this kind, and should actually succeed in killing in a given patient the little causes of such big mischiefs, if the predisposition were not also removed, very likely the first breath which our patient drew around the corner, or in the next street, or in the adjoining town would cause him to import a new cargo of fresh and active germs, which would at once reinfect him and put him in the same position as before.

To a limited extent it is possible to destroy the bacilli tuberculosis outside the body by means of heat, sunshine and certain other agents; but when we consider the vast number of consumptives in this world which is now so cosmopolitan, and reflect on the fact that each one (unless taught to live properly) is sowing broadcast day after day millions on millions of tubercle germs, which in suitable environments, especially darkness and dampness, may retain their vitality for long periods of time, and that these consumptives often do this for months in ignorance of their real condition, to say nothing of that large class in the community, lacking moral sense, who cannot be depended on to co-operate in any good work without the strictest compulsion, what a gigantic task it will be to destroy enough of the germs to render safe those of us who are susceptible. Human nature being such as it is, what autocratic powers must be exercised, greater even than those of the Czar of Russia, to compel all consumptives to destroy their sputum? Will not the strictest supervision, enforced by the heaviest penalties, with every man watching every other man, be evaded, as the spitting laws are now? Is it not really a harder task than to kill the mosquitoes which transmit malaria and yellow fever? Will not always some American citizens, so fond of liberty, claim the privilege of spitting just when and where they please, regardless of their own good or that of others? Will not some of these people deny that they have consumption? If so, can a law be enforced to seize them and have them examined? Even with the model citizen, is there not more or less time before the detection of the disease, when he may be a menace to the community? These and other questions suggest to my mind at least grave doubts as to whether the germs, the special cause of consumption, can ever be entirely eradicated. On the other hand, knowing human nature to be as it is, I have equally grave doubts as to the possibility of the total abolition of consumption's predisposing causes, such as bad ventilation, close confinement indoors, overwork, mental depression, damp soil, poor food, debilitating diseases and conditions, etc.

But, if it is impossible ever to eradicate completely tubercular disease, if like the poor we must have it always with us, is that any reason for our supinely giving up the fight against tuberculosis?

Smallpox has not yet been eradicated, in spite of widespread vaccination since the time of Jenner. And yet all intelligent and sensible citizens bless Jenner's name, thank the Lord for his discovery, and are willing to use the proper means for preventing this fearful disease, whose terrors have been so wonderfully and so largely dispelled by vaccination.

Vice has not yet been eradicated in this country, in spite of the opposition of the committee recently appointed by Tammany.

Human nature being as it is, the difficulties in the way of the complete suppression, not only of the grosser wickedness of mankind, but also of many lesser foibles and shortcomings, are gigantic indeed; and yet, where is the moralist who would bid us give up this battle?

The ravages of tuberculosis have been so frightful and so widespread, that it should be fought with the greatest determination.

A generation ago our people had comparatively scanty encouragement and had some excuse for being weak-kneed; but gradual improvement has come since then. Thomas Oliver, in the *Lancet* of November 10, states that between 1858 and 1860 the average number of deaths from pulmonary tuberculosis in England and Wales was 2,565 per million, while between 1871 and 1875 it was 2,218; between 1886 and 1890, 1,635; in 1891, 1,599; and in 1892, 1,468. This was before the application of the best modern methods. Similar statistics have been published for parts of this country, and other more recent figures are better still.

Those of us who have been eye-witnesses of the many recoveries, during the two and one-half years of its existence, at our Massachusetts State Sanitorium at Rutland (almost one-half of those admitted, and not far from three-fifths of the incipient cases), and the decided improvement of many who did not recover, have become very enthusiastic over this application on a large scale of the modern methods of treatment in this disease, and believe that this is work in the right direction. One of the most beneficent results of this work has been, as was predicted, the educating to some extent of those with whom they subsequently came in contact by the graduates of our institution, who had there been drilled in proper hygienic living. We are aware that to know the right is not always to do the right, but the doing is difficult without the knowing.

In fine, if we cannot in this world become perfect physically, intellectually and morally, we should nevertheless strive with all our might to come as near perfection as possible. If we cannot utterly and entirely eradicate the tubercular disease in this world, yet recent experiences ought to convince us that so much can be done in this direction, to say nothing of possible improvements in treatment in the future, that we should be encouraged to strive with all our might to come as near its eradication as possible. *Hic labor, hoc opus est.—The Journal of Tuberculosis.*

HEMORRHAGE MALARIAL FEVER: ITS TREATMENT.

By W. E. SPARKMAN, M.D.,

Georgetown, S. C.

Malarial hemoglobinuria, or "hemorrhagic fever" as it is called, is the result of profound malarial intoxication, occurring in neglected or frequently recurring cases of intermittent fever, just as we find the other varieties of pernicious fever (such as "congestive chill") following repeated attacks of ordinary malarial fever. It does not occur in the primary attacks of malarial fever, and I have never seen it in the remittent form of the fever, although I have seen remittent fever follow hemorrhagic fever.

In discussing the treatment of this condition it will be necessary to animadvert to or note some of the complications which accompany and follow it, and render it more grave than it would otherwise be.

Hematogenous jaundice, more or less intense, is a usual concomitant, and generally very distressing. Nausea is present in all cases. Suppression of urine, partial or complete, is one of the most dreaded complications, and when complete for any length of time is usually fatal. The suppression in my judgment is often due to the formation of clot in the uriniferous tubules, and when total obstruction occurs, uremic conditions quickly follow.

Hiccough is another very distressing condition which follows, and is often very hard to control, producing rapid exhaustion if prolonged. There is also a nervous jactitation peculiar to the disease, with which we find an utter inability to sleep, headache, and pains in the back and limbs.

Heart failure is apt to occur when we least expect it, and often when our patients are apparently doing well.

No hard and fast rules can be laid down for the treatment of these cases, and each must be treated on its own merits, as conditions confront us.

There is nothing to warn us of the approach of hemorrhage, and its occurrence is usually preceded by a chill, more or less marked, and each succeeding hemorrhage usually follows the chill stage. Aromatic sulphuric acid, in mild cases, acts well; but in those more severe I use the following prescription:

℞ Tinct. digitalis,
Tinct. ferri chlor., āā.. f ʒ vj
Ammon. chloridi.. ʒ iij
Aquæ dest., q. s. ad.. f ℥ iv
M. S.: One teaspoonful in water every three hours.

Ergot I never use, because I believe it favors clot and suppression of urine.

To keep the bowels open, and for its action on the hepatic secretion, I use sodium hyposulphite in drachm doses in cinnamon water every three hours until I am satisfied that the jaundice is clearing, and the urine becomes normal. For nausea and vomiting I apply mustard plasters to the epigastrium, a little brandy on crushed ice, or bismuth subnitrate, cerium oxalate, and carbolic acid in mucilage of acacia; but should there be much nervous jactitation with sleeplessness attending it, I use potassium bromide, spiritus etheris nitrosi, and chloral hydrate in simple elixir, adding, if fever be high, acetanilid, governing quantity and interval by the effect. As to suppression of urine, acetate of potassium with infusion of digitalis seems to be the best diuretic, and conjointly I use high rectal injections of salt and water, encouraging the patient to retain the water as long as possible.

This failing, and the patient being very much exsanguinated, the salt solution may be given hypodermically to advantage, selecting the gluteal or lumbar regions for injection.

When hiccough comes on Hoffmann's anodyne in drachm doses sometimes affords prompt relief, and at the same time supports the heart; but I also resort, when necessary, to spirits of turpentine, oil of amber, and many household remedies—one sufficing for one patient, while another acts better with some other, and in some cases all failing to do any good. Calomel I never use in these cases, although some claim that twenty-grain doses repeated once or twice in twenty-four hours is curative. Quinine I never use until my patient has passed twenty to thirty hours without any sign of hemorrhage, and then I employ full doses every four hours of the bimuriate with urea hypodermically. Should hemorrhage return I withdraw the quinine at once, but return to it as soon as I can safely do so.

Stimulants I allow freely where the stomach will bear it, using good whisky, brandy, champagne, or good wine, and sponge constantly with alcohol and water to reduce temperature. To guard against heart failure I give strychnine nitrate 1-40 to 1-30 grain every four to six hours.

The diet must depend upon the gravity of the case, and the ability of the digestive organs to take care of the food. Egg-nog, egg-albumen and milk (milk slip), corn gruel, all come in for their share of usefulness. I have also allowed very ripe, raw tomatoes, sliced and salted, and have never seen any but good results from their use. Lemonade serves to quench thirst and promotes the action of the kidneys, but I think is very inferior to the ripe tomato.

When my patient is fairly convalescent I give a pill three times a day containing:

℞	Quininæ sulphatis	gr. ij
	Ferri sulphatis	gr. ij
	Strych. sulphatis	gr. $\frac{1}{40}$
	Extract gentianæ	gr. $\frac{1}{4}$

This is an admirable reconstructive, as well as a preventive against future attacks.

Now as to prophylaxis. To guard against hemorrhagic fever those who are obliged to live in malarial sections must never fail to take prompt treatment when the slightest attack occurs, and should adopt all hygienic measures necessary to prevent a return.

Among other necessary precautions the patient should be careful about drinking impure water, and resort to some of the mineral waters now to be had.

The occurrence of more than one attack of hemorrhagic fever in the same person should promptly urge him to seek a home beyond the reach of the poison, for each succeeding attack only renders one more liable to other attacks.—*Therapeutic Gazette.*

ENLARGED PROSTATE, CYSTITIS, WOUND OF THE URETHRA AND ABSCESS OF THE TESTICLE.

By L. H. SCHWERIN, M.D., Crossville, Tenn.

Mr. M. S., sixty-six years of age, had been afflicted for twelve years with an enlarged prostate. The use of a catheter had long since occasioned a cystitis which necessitated the bladder being washed out at regular intervals. Four years ago, being unable to introduce a catheter, by reason of the prostate being more enlarged than usual, he resorted to the use of an iron wire which he placed inside the catheter, and attempted to force it into his bladder. During the manipulations the end of the wire passed through the eye of the catheter and pierced the urethra, causing a frightful hemorrhage. I found him in terrible agony from his wound, and from not having voided his urine for sixteen hours. The urethra was full of clots which were syringed out. After several unsuccessful attempts to pass the catheter, having no desire to increase the irritation, I used a small-sized trochar, tapped his bladder, and drew off about two and one-half quarts of urine, which on examination was found to contain pus, epithelium and bacteria. The difficulty in introducing the catheter on this patient was increased by the fact that he had not only a greatly enlarged prostate, but that there were three false passages, into one of which the catheter persisted in entering. Hot rectal injections produced some slight improvement. (In several cases I have been able to pass a catheter by inserting it as far as possible, and then injecting through it a few minims of a four per cent. solution of cocaine hydrochlor. After waiting a few minutes I generally am able to catheterize this class of patients; however, in this case the cocaine failed to be of any use.)

After tapping his bladder I easily introduced a number ten Mercier catheter, which was allowed to remain in the bladder for three days. (In cases of enlarged prostate, where much difficulty exists in passing a catheter, after several futile attempts have been made, desist and tap the bladder. Do not further wear out your already exhausted patient by punching a catheter against his swollen and inflamed prostate. After tapping the bladder, which is a procedure devoid of any danger and attended with but little pain, allow the patient to rest for a half hour, then attempt to pass a Mercier catheter, and you will be surprised how easily it glides in.)

From this attack the patient made a good recovery. Eighteen months later he experienced a second attack, and again the above described plan of treatment was carried out. During the interval between he attacks, he had been washing his bladder once or twice weekly with a saturated solution of boracic acid and taking salol and other medicines internally; still a very persistent cystitis remained.

I injected a solution of silver nitrate into his bladder, but this caused him so much pain that he refused to allow its further use.

Sixteen months ago he complained of his trouble getting worse. He suffered from much burning pain in the bladder, passed a good deal of blood, and his urine had a bad unnatural odor.

On examination the urine was found to contain pus and bacteria in abundance. His general condition steadily declined; nothing seemed to exert any beneficial influence and at last he became unable to leave his bed. Vesical tenesmus was very pronounced. He had desire to pass water every few minutes, the urine being white in color and foul smelling. He could not void urine without the use of a catheter. His condition was indeed pitiable.

He consulted a specialist, who washed out his bladder with a saturated solution of boracic acid, injected silver nitrate solution, and gave him urotropin. Under this treatment he improved, but being away from home felt dissatisfied and therefore returned.

Shortly after his return he complained of an excruciating pain in the scrotum. On examination I found the left testicle tender and swollen. I ordered hot poultices to be applied, and a day or two later the abscess was opened and about two ounces of pus were discharged. Under the usual treatment it was soon well. (This abscess was probably caused by his using a dirty catheter too roughly, and wounding the prostatic urethra, causing an epididymitis, which by an extension of the inflammation into the body of the testicle caused the suppurative condition.)

I continued the urotropin and washing the bladder with the saturated solution of boracic acid, but in place of the silver nitrate solution I employed the silver preparation known as protargol. This treatment, combined with the administration of nourishing foods, produced the happiest results.

The following is a detailed plan of treatment for this class of cases, this being the one I have found to produce the best results:

(1) Thoroughly wash out the bladder with a saturated solution of warm boracic acid. This should be done daily for three or four days, gradually increasing the time between the irrigations according to the improvement the patient makes. The washing may be accomplished either by filling the bladder by means of a Politzer bag and the Mercier catheter, or by using a double flow catheter.

(2) Inject into the bladder four ounces of protargol solution (four grains to the ounce). This solution should be allowed to remain for a few moments, when it should be drawn off.

(3) Inject one ounce of the solution into the bladder and allow it to remain.

(4) Give your patient urotropin every four hours in suitable doses. This preparation, which is ammonium formaldehyde, is a remedy exerting a highly antiseptic effect on the urinary passages by means of the formaldehyde being set free in the urine. Urotropin should always be given dissolved in plenty of water. Regarding the dosage, it is a good plan to begin with a small dose, say, five grains four times a day, carefully watching the effect on the patient. Give enough to clear up the urine without causing vesical irritation. As soon as the urine becomes clear, reduce the dose to the smallest amount that will keep it so.

(5) During the course of treatment have your patient drink an abundance of mineral waters. Plain soda, vichy, kissingen, or seltzer allays the dryness of the mouth and fauces, a condition often occurring in persons taking urotropin for a length of time.

(6) Plain nourishing foods and reconstructive tonics should be given.

(7) Do not lose sight of the fact that instruments used (catheters) must be thoroughly aseptic.

In this class of cases we have to deal with a condition of the mucous membranes in which the germs of septic infection play an important part, so that what we desire is some local agent of diffusive power which will reach and exert a destructive effect on the bacteria, and some preparation which when given internally will exert an antiseptic effect on the urinary tract. The two agents which my past experience has proven to be the best for complying with these requirements are protargol and urotropin.

Protargol is a proteid compound of silver, and unlike most of the silver preparations, is an unirritating antiseptic possessed of great diffusive power, thereby enabling it to penetrate into the deeper layers of the mucous membrane, and destroy the gonococci which have a tendency to proliferate in these deeper tissues, and which would be unaffected by preparations that are decomposed by the secretions and are devoid of penetrative ability.

In conclusion I will state that in the management of suppurative diseases of the genito-urinary tract, urotropin internally and protargol locally will produce better results than can be obtained from any other method of treatment. To me these preparations are indispensable in the management of patients suffering from such diseases.—*International Journal of Surgery.*

SOME CLINICAL ASPECTS OF CHRONIC NEPHRITIS.

While the medical profession should be ever ready to honor those of its members who have distinguished themselves and advanced their art by important discoveries, the wisdom of employing eponymic designations in this connection is questionable, because they are necessarily undistinctive, at times confusing, and thus obstructive of progress. Thus the same name may be, and actually has been, applied to more than one condition; then, with the growth of knowledge it may be found that the limitations of the original name have not been perfectly defined; finally, there are few minds so capacious as to be able to store up all of the proper names that have at different times been proposed. Some of these difficulties are illustrated in the employment of the term "Bright's disease." Although the association of disease of the kidneys, albuminuria, and dropsy had been previously noted, to Bright belongs the credit of having first pointed out the dependence of the latter two upon the first; but several morbid conditions of the kidney were comprehended in the description of Bright, so that after all it seems better, for the sake of clearness and accuracy, to employ the generic designation nephritis with its several qualifications—acute, chronic, parenchymatous, interstitial, lardaceous, cystic, etc.

A view somewhat opposed to this is taken by Dr. Alfred G. Barrs (*British Medical Journal*, March 30, 1901, p. 753) in an address on "Some Clinical Aspects of Chronic Bright's Disease" recently delivered. He contends that the pathological distinctions made between the different forms of so-called chronic Bright's disease have little clinical value, and that there is no practical utility from a therapeutic or a prognostic standpoint in distinguishing between a large white and a small red kidney, even if it were possible to do so with certainty.

The important fact to determine, he thinks, is whether the condition be acute or chronic, as the chances of recovery are then good or bad respectively. Acute nephritis, Barrs believes, terminates either in recovery or in death, while chronic nephritis is so from the outset, and he suggests the possibility of a bacterial origin for the latter.

The opinion is expressed that the diagnosis of chronic Bright's disease cannot safely be made in the absence of albuminuria, although it is not denied that renal changes—Bright's disease in a pathological sense—may exist and the urine be free from albumin. No importance whatever is attached to the quantitative estimation for albumin, and the estimation of urea is not thought to be of any great value. The cardio-vascular changes, it is believed, are not so uniformly inevitable or so common as is generally held. The statement is made that arteriosclerosis, altogether independent of renal disease, is a far more common cause of cardiac hypertrophy than Bright's disease, and vascular disease of this nature is probably a cause as well as a result of renal disease. As a natural corollary chronic renal disease is not looked upon as having nearly such a common association with cerebral hemorrhage as has been supposed. Toxemia, the inevitable result of progressive destructive disease of such a vital excretory organ as the kidney, is considered the direct and only cause of death in the vast majority of cases.

In the matter of diet, Dr. Barrs makes it his rule that if the bowels are acting freely the patient may live on such ordinary mixed food, including meat, as he has appetite for and can digest. Water and other fluid sustenance should be taken freely; alcohol is to be avoided unless demanded by cardiac failure; climatic treatment may be a valuable adjunct. Of drugs nothing beyond the systematic use of purgatives, to keep the bowels acting freely, will be needed except for the treatment of special symptoms as they arise. Dr. Barrs has no great faith in the so-called vicarious action of organs, and he believes that the proper way out of the body for urea is the kidneys, and neither the intestines nor the skin can be made to take its place efficiently. Diuretics such as digitalis are frequently of the greatest use, but they almost as frequently fail. Diaphoretic drugs, such as pilocarpine, are sometimes unpleasant and even dangerous in their effects, the hot bath and the hot-air bath being depended upon to do all that can be done. Vaso-dilators have little if any diuretic action, but may relieve dyspnea, headache, and vomiting. Bleeding, purgation, and sweating are employed for the relief of nervous and respiratory disturbances. Morphine and opium should not be used as a rule, but not infrequently the former alone will relieve distressing and painful respiratory and mental disturbances.

The views thus briefly summarized are, as will have been seen, not in accord with current opinion; but without agreeing with them we must at least give them respectful consideration, emanating as they do from a most responsible source. A discussion in detail would carry us too far and, besides, seems unnecessary. In all scientific controversy, however, the motto "Audi alteram partem" is a good one to adopt.—Editorial in *Medical Record.*

NOTE ON A HITHERTO UNNOTICED CONDITION OF THE OMENTUM IN CANCER OF THE OVARIES.

By A. LAPTHORN SMITH, B.A., M.D., M.R.C.S., London,

Professor of Clinical Gynecology in Bishop's University; Surgeon-in-Chief of the Samaritan Hospital for Women; Gynecologist to the Montreal Dispensary; Surgeon to the Western Hospital, Montreal.

My attention was first called to this matter about ten years ago by the following case: I was sent for in a hurry to a woman about fifty years of age, whom I found sitting upright in a chair, gasping for breath, with a fluttering pulse and quite cyanosed. A hasty examination revealed the fact that her abdomen was tightly distended with fluid, free in the cavity, and that the first aid that should be given her was to draw off this fluid so that her heart might have room to beat. I returned in a few minutes with a small trocar, which I always employ, so as to avoid the danger of hemorrhage into the veins by the sudden removal of the supporting fluid surrounding them. After the first five minutes she felt immensely relieved, although it took more than an hour to withdraw four gallons. But long before this quantity had come away the cause of the ascites was apparent, for two large masses as large as a man's head made their appearance, lifting up the relaxed abdominal wall. Three days later I removed these tumors at my private hospital through a large incision about eleven inches long. Before closing it I tried to get hold of the omentum to draw it down under the incision to prevent the intestines from becoming adherent to the latter, when to my surprise I found there was practically no omentum, but only a fringe about an inch wide, apparently attached to the border of the liver. These specimens were examined and found to be carcinoma of the ovaries. This patient lived very comfortably for three months, when she died of cancer of the liver.

A year later a patient was sent to me by Dr. Struthers, of Bedford, with a papilloma of the ovaries. She and her husband and the physician were very anxious to know the prognosis. The papillomatous mass was exceedingly vascular and bled profusely on the slightest touch, but the hemorrhage was quickly controlled by tying the ovarian artery, and every vestige of the papillary buds was picked off the surrounding peritoneum. Many of these papillomatous cysts are on the border-land of cancer, but in this case I based a favorable prognosis, first, on the absence of the cachexia; second, on the absence of ascites, which I have always found present in cancer of the ovaries; and third, on account of the healthy omentum which I had no difficulty in drawing down and which was smooth and long. This patient rapidly regained her health, and has been heard from within a year as being alive and well, although it is now more than eight years since the operation.

Another case was a Jewish woman, kindly referred to me by Dr. G. T. Ross. She had a papilloma of the ovary exactly identical in appearance with the preceding one, and bleeding profusely on the slightest touch, but there was this difference, that there was a good deal of ascitic fluid in the abdomen and the omentum was shriveled up like the first case, feeling like burnt leather, and it could not be drawn down so as to be seen. I gave a very unfavorable prognosis in this case. Although her death, a few days later, from peritonitis, was of no significance as to the cancerous nature of the papilloma, yet the examination of the specimen gave undoubted evidence of this condition being present. Another case was a woman this winter at the "Samaritan," who was sent in by Dr. Caisse for an abdominal tumor. A nodular mass could be felt in the pelvis firmly fixed, and the examination of the abdomen gave dulness in front like an ovarian cyst. On opening the abdomen it was found to be full of free fluid, but the intestines could not float on it so as to give resonance in front as in ordinary ascites, because they were adherent and bound down to the back of the abdomen. I dried out the peritoneal cavity, and decided that the case was inoperable, but I took the precaution to examine the omentum and again found one of these burnt-leather-like fringes attached to the border of the liver.

The next case was one of an abdominal tumor as large as a fetal head, sent to me by Dr. Leprohon. Her appearance was exceedingly cachectic, and she was confined to her bed for several months by almost constant and exhausting hemorrhage. The possibility of the tumor being a carcinoma of the body of the uterus was quite strong, so, after removing the tumor, I examined the omentum and found that it was long and smooth and soft and easily drawn down. If I had found it short and crinkled, as in the other cases, I would have removed the cervix, but with such a healthy omentum I gave a very favorable prognosis and allowed the cervix to remain. This patient is doing very well two months after the operation, and is rapidly regaining her color. These are the only cases which I can recall distinctly bearing upon this question, and I have brought it before you so that others of our members who are doing abdominal work may tell us if they have noticed this condition, and, if they have not, if they would kindly note every case in which they are unable to draw the omentum down under the abdominal incision, with a view to tracing the subsequent history and reporting it if the patient dies of cancer. With regard to ascites or free fluid in the abdominal cavity and the presence of an ovarian tumor, I feel almost certain that it is conclusive evidence of malignancy. Two years ago I was present at an operation by my friend Segond, of Paris, who had diagnosed a nodular tumor in the pelvis. As soon as he had opened the abdomen a quantity of free straw colored fluid escaped, and, as I was standing close to him, and the only visitor, I ventured to remark that it was probably a malignant papilloma. He asked me what made me think that, and I replied my experience of similar cases, and after removing and examining the mass he agreed in the diagnosis and prognosis.

I have examined ten of the most likely authors in my library without finding any mention of this point, except by Martin, of Berlin, who says: "The development of carcinomatous foci in the ovary always irritates the peritoneum to a high degree, so that ascites and chronic peritonitis are hardly ever absent. With greater frequency than is represented by authors, I have observed the presence of nodules springing up widely separated from each other and apparently independent of each other, which developed further sometimes in the mesentery and sometimes in the group of retroperitoneal glands. In these cases I have observed with striking frequency affections of the omentum, sometimes in the form of a thick callous mass pushing itself like a board between intestines and abdominal wall, sometimes rolled together to a single mass in such a manner that it resembled some peculiar atypical tumor. —*Canada Medical Record*.

MEETING OF THE BALTIMORE MEDICAL AND SURGICAL ASSOCIATION.

Held at the Hall of the Medical and Chirurgical Faculty, April 22, 1901.

First paper was read by Dr. L. M. Allen. Subject, "Puerperal Sepsis."

The following is briefly the discussion of Dr. Allen's paper. Dr. J. Whitridge Williams said: I have studied thoroughly the history of these cases of want of asepsis in obstetrics. English and German obstetricians have early shown the nature of sepsis and the need of prevention. In Vienna the average mortality was 10 per cent. In one clinic showing 42 cases there was a death rate of 41. The following is said to be authentic, in Catholic hospitals, the priest was often seen preceded by his acolyte ringing his bell, tolling the demise of another patient. Semmelweiss advocated the employment of chlorine water, but no attention was given to his views. He wrote largely on the matter, but to no avail. Seeing the futility of his work, he acquainted the profession with the fact that if the German professors did not accord with him, he would place himself by letter in touch with the *pater familias* of all such cases and urge the employment of chlorine water. To see that the hands of both the physician and midwife were cleansed. Strange as it may seem to relate, this man died of sepsis. His book treating on the subject could not be purchased for less than $15.00, but so little was it appreciated that I secured one from a dealer for a few cents at an old book store.

Tannier reports his experiences with large mortality. He noticed hair infection, and pleaded the employment of potassium permanganate. Bacteriological contents of the vagina are due to autoinfection. I note thereby that there are many streptococci in the vagina. Dr. Michael found them in 155 cultures in his clinic. He found on sterilized specula and also on small tubes the streptococci which he concluded were from the labia. Cultures from the labia external and internal proved the presence of organisms in 60 per cent. of all the women examined, an additional 10 per cent. to the external genitalia. The fingers carry the sepsis.

As far as external palpation is concerned—cultivate it! The condition of the cervix in private practice can be determined frequently by abdominal palpation where vaginal investigation must be abandoned. There are cases, however, where we must resort to vaginal examination.

In cases of sepsis I like vaginal irrigation. I also use strychnia and whisky. Also use douches of salt or boiled water if there be much infection. As for the employment of bi-chloride, I do not use it, it is poisonous. Our records show that 40 women died where it was used in 1-4000 and 1-5000 douchings.

Curetting: this has caused more infection in women than anything else. Its tendency to break down the tissues is very noticeable. In France, where it is so common, no one knows the number of deaths from it.

Dr. J. E. Gibbons—How long can a patient be left by the doctor while labor is in progress, and how is the doctor to determine how long he may absent himself if he does not make a vaginal examination?

Dr. W. B. Perry—We are not all doing hospital work, having nurses and so on, and in such absence we should insist on cleanliness to its utmost. As far as the serum treatment of these cases is concerned, I can report as follows—of three of my own cases (cultures positive) two died, one recovered. Dr. Brack had two to die out of four he treated. Dr. Beck while treating a case of erysipelas avoided an obstetric case which on fourth day showed—gave history, temperature 105° F., culture positive. Salt injections were used, and no serum employed. Thrid day after the temperature was normal, and there was a quick recovery.

Dr. Gustav Goldman—Gentlemen: I wish to make three points, I have brought with me this evening several charts which the evening's discussions allude to, especially the last case mentioned by my colleague here, but to pass on, I beg to say that in the past five or six years of my private work I have noticed eclampsia and sepsis in my own neighborhood. In one case Dr. Brinton noticed a typical case which was over a butcher shop, and if it is worthy of note, I can state that four of my own cases like this one were over butcher shops. I think, Dr. Brinton, we spoke of that recently?

Dr. Brinton—Yes, I recall, Doctor.

Now, my query as to infection—primarily. How are we to know if the uterus is clean, unless we explore it? This, I argue, weakens the reliance Dr. Allen puts on abdominal palpation when he states it may be practiced in toto. It is impossible for me to reach the fundus with my fingers alone. The theory of external infection by introduction I am in hearty accord with, and I limit my views pertinent to the serum therapy until I hear the views or expressions of some other followers of that creed. I would like to know what the profession has accomplished with it, and I believe that it is a good addition to our aiding these cases.

The three different forms of sepsis alluded to in Dr. Allen's paper are particularly noticeable in these charts, which I clinically obtained at the Maryland General Hospital, and in other cases have had them repeated in private practice.

Dr. J. W. Williams—I like to employ stimulants in these cases. We had 200 cases and a mortality of 33 per cent. in which serum was employed, then we again had a mortality of only 5 per cent. where it was used. Reports vary. In the different countries of Europe the clinical data are ranging from the most enthusiastic to the most disparaging regarding the serum. Nearly all get well with simple stimulating treatment.

Dr. Allen, in closing, said he adhered to the advantages of abdominal palpation and did not urge vaginal examinations. He could recognize by external methods all information regarding the progress of labor. He said he did not largely favor the serum therapy in these cases.

The next paper was read by Dr. Percy Smith. Subject: Veratrum Viride in Puerperal Eclampsia.

(After this paper was read the President, Prof. Chas. G. Hill, called for the next paper and asked for a joint discussion of both.)

Dr. E. L. Whitney read a paper on Pathology of Puerperal Eclampsia.

DISCUSSION.

Dr. C. Urban—The pathology of these cases is of vital importance. Examine the blood. Invariably the liver is affected both in the mother and the baby, and there is hardly any toxine in the urine of the pregnant woman. I had two fatal cases in my practice where albumen was present, but I think that acetone has little or nothing to do in these cases.

Dr. Brinton—At one time I heartily endorsed blood-letting in these cases, now I eliminate it a great deal, in fact, almost entirely. The suddenness of these attacks is remarkable, I have always been impressed with it as especially noticeable. Despite our best efforts "some will die," after all.

Dr. Allen—We have records of 15 cases treated with verat. viride, all of which recovered, and of 16 treated without it most all died, and some of these were handled by purgative treatment and salt solutions.

Dr. Percy Smith, in closing, said: A certain number will die despite our acutest attention to them. I believe that the mortality is lower in the cases where vetratrum is employed than where we have used venesection.

Dr. Whitney referred to the suddenness of the attacks in these cases and pleaded for a milk diet and plenty of carbo-hydrates as a part of the treatment.

Eugene Lee Crutchfield, M.D.,
Secretary.

"RUDOLF VIRCHOW FUND."

To the American Medical Profession:—

On October 13, 1901, *Rudolf Virchow* will be eighty years old. When he completed his seventieth year, a fund was started in his honor to enable the great master to facilitate scientific research by establishing scholarships, and by encouraging special medical and biological studies. Contributions to that "*Rudolf Virchow Fund*" were furnished by those in all countries interested in progressive medicine, as a homage to the man whose name is always certain to arouse admiration and enthusiasm.

In Berlin a large Committee, containing amongst others the names of A. Bastian, v. Coler, A. Entenburg, B. Fraenkel, O. Israel, Fr. Koenig, C. Posner, and W. Waldeyer, has been formed to call for contributions which are to be added to the original "Rudolf Virchow Fund," so as to increase its efficiency. The Committee expresses the opinion that in no better way, and in none more agreeable to the great leader of modern medicine, can his eightieth birthday be celebrated, and ask for the sympathy and co-operation of all those engaged in the study and practice of scientific medicine all over the globe.

The undersigned have formed a sub-committee, for the purpose of making the American Profession acquainted with the intentions of the Berlin Committee, and urge their colleagues to participate in honoring the very man who has done more, these fifty years, than any other to make medicine a science, and international.

Subscriptions should be sent to their Secretary, who will receipt therefor.

Charles A. L. Reed,
President of the American Medical Association.
Henry P. Bowditch,
President of the Congress of American Physicians and Surgeons.
William K. Welch,
Johns-Hopkins University.
Robert F. Weir,
President of the New York Academy of Medicine.
A. Jacobi,
110 West Thirty-fourth street, New York, Secretary.

PROSTATIC ABSCESS WHICH OPENED INTO BOTH URETHRA AND RECTUM.

In the *Annales de la Policlinique de Bordeaux* for March, 1901, Dr. E. Loumeau reports the case of a man of thirty-five, in whom gonorrhea or gleet was constant. For two weeks before consulting his physician, his symptoms had become aggravated. Though examination showed no sign of recent gonorrhea, permanganate injections were given. At the moment the liquid reached the bladder, the patient experienced sudden severe pain in the perineum, followed by a chill and a temperature of 104° F. This perineal pain persisted with frequent urination, a few drops of blood appearing at the end of micturition. Pus was found in the urine in large quantity. The diagnosis of acute prostatitis with cystitis was made. Complete retention of urine occurred, to relieve which catherization was employed, though so painful that chloroform was necessary. Rectal palpation at this time revealed an abscess in the right lobe of the prostate, which was evacuated through the urethra by pressure with the finger. As this treatment yielded no good result, the abscess, which had pointed in the rectum, was opened there. The cavity was cleaned out, dried with gauze, and drained per rectum. The fever and pain disappeared. Pneumaturia was noticed for a few weeks, but no fecal matter was seen in the urine, or urine in the bowel movements. Two weeks after operation, right epididymitis occurred, going on to suppuration. This abscess was also opened and drained. The patient, who had wholly recovered, left for Brazil, where he died of yellow-fever six months later. This phlegmonous prostatitis opened into the urethra, causing a cystitis and urethritis; by its pressure into the rectum, it caused great pain, and after evacuation it was still the cause of epididymitis. Loumeau believes that when such an abscess points into the rectum, rectal incision is to be preferred to perineal section.—*Philadelphia Medical Journal.*

It is announced that the dates of the next meeting of the Mississippi Valley Medical Association have been changed from the 10th, 11th and 12th of September to the 12th, 13th and 14th of September. This change has been made necessary because the dates first selected conflicted with another large association meeting at the same place.

The meeting is to be held at the Hotel Victory, Put-in-Bay Island, Lake Erie, Ohio, and the low rate of one cent a mile for the round trip will be in effect for the meeting. Tickets will be on sale as late as September 12, good returning without extension until September 15. By depositing tickets with the Joint Agent at Cleveland and paying 50 cents, the date can be extended until October 8. This gives members an opportunity of visiting the Pan-American Exposition at Buffalo, to which very low rates by rail and water will be in effect from Cleveland.

Full information as to rates can be obtained by addressing Secretary, Dr. Henry E. Tuley, No. 111 West Kentucky street, Louisville, Ky. Members of the profession are cordially invited to attend this meeting.

Those desiring to read papers should notify the Secretary at an early date.

SODA COMPRESSES IN SUPPURATION.

G. E. Vladimiroff (*Medicinskoie Obosrenie*, February, 1901) fully corroborates the splendid results obtained by a number of Russian physicians from the use of compresses of soda in diverse suppurative processes. The use of this drug in such cases was first suggested by Georgiewski, who claimed for it the following advantages: 1. It is cheap and readily obtainable; 2. no drainage is required; 3. the patient is much more comfortable; 4. the pain, at times severe, accompanying the change of tampons is altogether avoided; 5. the bad odor and the unsightly appearance of the dressings are absent; 6. recovery is much more rapid. The author employed this treatment in thirty cases. In six there were burns of the second and third degree; in two a pustular eruption; in one a suppurating fistula; in ten contused and incised wounds; in six suppurating lymphatic glands; in five ingrown toe nails. He employed the compresses in the following forms: 1. A layer of gauze saturated with a two per cent. solution of soda was applied. This was covered with a piece of oil cloth, cotton and a bandage. The compress was changed three to four times in twenty-four hours. 2. The gauze next to the body was not removed but kept saturated by pouring on it two to three times during the twenty-four hours a two per cent. solution of soda. 3. Several layers of gauze saturated in the soda solution were placed over the suppurating surface, these were covered by a thick layer of boric acid and camphor salve, then a piece of oil silk, cotton and bandage. Such a compress remained moist for one to two days. The results obtained were exceptionally good.—*Philadelphia Medical Journal.*

RENAL COLIC.

℞ Lithii citratis.................................... ʒj
Ext. hydrangeæ fl.................................... ℥iv
Infusi tritici, q. s. ad.................................... ℥vj
M. Sig.: One tablespoonful every four hours in water.

Or:—
℞ Lithii citratis.................................... ʒj
Pot. citratis.................................... ʒiss
Ext. zeæ fluidi.................................... ℥j
Infusi uvæ ursi, q. s. ad.................................... ℥vj
M. Sig.: One tablespoonful every four hours—*Journal of the American Medical Association.*

QUICK REMOVAL OF TAPE WORM.

A. J. Weldon, in the *Southern Practitioner*, recommends for the removal of tenia solium a teaspoonful of chloroform on an empty stomach, to be followed in an hour by an ounce of castor oil. The chloroform producing anesthesia on the worm, and while in this stupid condition he sleepily floats away with the contents of the bowels, the effects of the oil.

THE INFLUENCE OF BILE ON METABOLISM.

Elliott P. Joslin (*Journal of Experimental Medicine*, March 25, 1901) says that bile increases the digestion when given by the mouth in pill form. The percentage of fat lost in the stools of a patient with a complete biliary fistula was sixty-three per cent. in the first period and fifty-seven per cent. in the third. The digestion of nitrogenous food is improved by the use of bile pills when the amount of fat in the stools is large. Ox bile is a cholagogue. The effect of the bile on the bowels is not remarkable, although they may be moved more satisfactorily during the bile period. In the writer's experiments with dogs he usually obtained diarrhea when giving bile. As to the general effect of bile on body metabolism, the writer observed that the urea and nitrogen were excreted in greater amount in the bile period than either of the others. The amount of urine is increased by more than fifty per cent. in the bile period.—*Medical Age.*

DIABETES—A SUCCESSFUL TREATMENT.

John B. Hawkes, in the *International Journal of Surgery*, recommends the electric battery almost as a specific in this disease. This is somewhat new to the writer, but he cites six cases treated by him with the battery, five of which were entirely cured, the sixth leaving for the West. No medicine was given and plenty of fruit allowed.

The faradic current was used at first very weak. The cathode was placed at the base of the spine, while the anode was held at the base of the skull. Seances of five, eventually increased to ten minutes, were given. The improvement was extraordinary.

PURULENT ENDOMETRITIS.

In the *Philadelphia Medical Journal* Dr. Jay G. Roberts, of Hastings, Neb., describes a method by which he has had favorable results.

"The method of application, which is very simple, is as follows: An emulsion is prepared according to the following formula, the small amount of creolin very effectually disguising the odor without affecting its efficacy, to which most patients object very strenuously:

" ℞ Iodoform	2.00
Amyl	1.00
" Mix and add:—	
" Glycerin	20 00
Water	12.00
Creolin	0.30

" M. Stirring gradually, heat to about 27° F.

"This makes a more stable emulsion than that made by the usual method.

"For the injection the ordinary long-nozzled intra-uterine syringe may be used. I have found a small glass syringe with a soft rubber nozzle, some two inches in length, and of sufficient firmness, to answer admirably."

GAILLARD'S MEDICAL JOURNAL.

A MONTHLY JOURNAL OF MEDICINE AND SURGERY

Scientia et Veritas Sine Timore.

PUBLISHED BY THE NEW YORK MEDICAL PUBLISHING CO.,
116 Nassau Street, NEW YORK.

All communications, of either business or editorial character, should be addressed to Gaillard's Medical Journal, 116 Nassau St., New York.

Articles for publication will be received with the understanding that they are contributed exclusively to this journal. Reprints will be furnished at actual cost, orders for which should accompany the manuscript. Authors of accepted articles may receive twelve copies of the issue in which they are published. Necessary illustrations will be furnished without expense to authors when suitable drawings or photographs are furnished.

EDITORIAL.

The Organization of the Medical Profession.

The preliminary report of the committee on organization of the American Medical Association, which had been made public prior to the St. Paul meeting with the object of eliciting the views of the medical profession upon the plan there outlined, is a most interesting document. The committee recommends that the constitution and by-laws of the American Medical Association be so amended as to carry out the following general plan:

1. The delegate body shall hereafter be known as the "House of Delegates of the American Medical Association."

2. The House of Delegates shall consist of not more than 150 members and shall be created as follows: (a) One delegate for every five hundred members, or fraction thereof, of the State and territorial societies recognized by the American Medical Association; (b) one delegate from each of the Sections of the American Medical Association, to be elected as are other officers of the Section; (c) one representative each from the U. S. Army, the U. S. Navy, and the U. S. Marine Hospital Service.

3. Delegates representing the State societies shall serve for two years, one-half, or as near as may be, of such delegates to be elected the first year for one year only.

4. Whenever the number of delegates exceeds one hundred and fifty, there shall be such a re-apportionment among the affiliated State societies as will bring the total membership of the House of Delegates below that number.

5. The House of Delegates—as the Sections—shall hold its sessions daily, from 9 A. M. to 12 M. and from 2 P. M. to 5 P. M., or so much of such time as may be necessary, provided that it shall hold no session on the morning of the first day of the annual meeting, nor during the time of the General Sessions.

6. The General Sessions of the American Medical Association shall be composed of members and delegates who may be in attendance at the annual meeting, and the time of meeting shall be 11 A. M. on the first day of the annual meeting, 7:30 P. M. on the first three days of the annual meeting, and 12 noon (or such other hour as may be agreed upon) on the last day of the meeting, which session shall be for the installation of the officers for the ensuing year and other concluding exercises.

7. All the officers of the Association shall be elected by the House of Delegates, but no member of the House of Delegates shall be eligible to any office whose incumbent is elected by that body.

8. No one shall be elected a member of the House of Delegates who has not been a permanent member of the American Medical Association for at least two years.

9. The election shall take place on the morning of the fourth day of each annual meeting.

10. No one shall be elected to any office who is not present at the annual meeting at which the election occurs.

11. The officers elected shall be installed at 12 o'clock on the last day of the annual meeting.

12. The membership of the Association, in addition to the delegates, shall be composed of permanent members, honorary members, and associate members.

The re-organization of the Association itself is, however, only a small part of the general plan proposed by the committee, which—if properly carried out—will give to the medical profession of the United States a solidarity which will prove a potent factor for good in the regulation of State medicine generally.

While the committee is, of course, not empowered to act for the subsidiary organizations, it has drafted an entire scheme of delegate organization for State medical societies under which membership in the county or district society shall constitute membership in the respective State society, while the legislative branch of the State society is to be composed of delegates elected from county societies in proportion to their membership, the State society, in short, being closely modeled upon the form of organization above proposed for the national society.

The plan proposed is a most excellent one, and, it is to be hoped, will be adopted not only in the American Medical Association itself, but by the several State societies, so that there will be no missing link in the chain of organization which will bind together the entire medical profession of the United States.

Experimental Tests.

It has been said: "We are constantly getting proof of the comparative inefficiency of the remedies formerly trusted by the medical profession." Yes, we are constantly getting such proof. Medical science is advancing steadily at a rapid rate, and many of the older remedies are inefficient compared with the secrets of cure that have been abstracted from Nature within the last few years. The great advance in the knowledge of anatomy and pathology, the acquirement of which knowledge necessitates the highest kind of intellectual study, has had much to do with the progress made in the successful treatment of disease. It is true, that many lives have been, and are being, "sacrificed on the altar of human ignorance." New "means of cure" are being introduced with great frequency; some fail, others succeed. The practitioner must give the decision as to their therapeutic value, and he should realize that experimental tests to discover the therapeutic certainties of remedies, and along various lines of treatment, giving minute reports of cases, including both successes and failures, will surely result in discovering the treatment giving the highest average of recoveries in the shortest time. If a physician makes an important discovery, either in favor of or against a remedy or course of treatment, in any disease, or if his test proves or disproves the claimed important findings of another, it is his plain duty to make the fact known in a communication to his medical journal.

The Doctor's Duty.

The physician is guardian of the public health. It is his duty to look after the physical welfare of mankind, but administration of drugs and performance of surgical operations do not comprise the whole of that duty. He should show his charges how to maintain healthy bodies, and teach those who do not seem to know, that violation of moral laws inevitably leads to physical suffering—that the curse of heredity is still over them.

As a most important part of his duty, the physician should so equip himself that parents who desire their children to grow up into morally and physically healthy men and women may send them to him for education in the vital subject of sexual ethics and hygiene.

Sexual education is neglected in the schools, and parents cannot adequately impart the needed instruction, so the children are left to pick it up as they may. How some of them pick it up is shown by tragedies too frequently made public in the newspapers. The recalling of one case will serve as an illustration: In a New Jersey prison there are four very penitent young men, and it is almost impossible to imagine the depths to which they must have fallen to commit the awful crime for which they are now paying the penalty. The road to sexual impurity is an ever downward one, and after the first step the descent is rapid. The four young men are supposedly bright, intelligent and well-educated, but the cause of their downfall was lack of sexual education.

Diseases innumerable are traced directly to the one awful disease propagated by the illicit use of the sexual function—a disease to which all classes of people in every land are subject, a disease that is "uninfluenced by climate and unbarred by latitude or longitude." This disease, and such crimes as the one referred to, are directly traceable to the lack of proper sexual education.

The sexual function is given to fulfil one of the highest laws of the Creator, the procreation of species, and every violation of the commandment in reference thereto carries with it its own punishment.

Vaccination is considered a necessity by the greater part of the civilized world, and every time a case of smallpox is heard of there is a boom in the vaccine market. Sexual education is of greater importance than vaccination. Let the physician prepare himself to impart the proper knowledge, and let no false sense of delicacy keep parents from sending their children, at the proper time, to the physician, that they may learn facts which will shield them against far greater maladies than are claimed to be warded off by vaccination.

Poisons and Publicity.

While it would be going too far to say that newspapers are in any way responsible for cases of murder or suicide by poison; still if the newspapers were to use a little discretion in publishing the name of the poison by which a murder or suicide has been committed, it *might* result in a decrease in the number of such deeds, for publicity seems to have a tendency to create a run on certain poisons. Carbolic acid, hydrocyanic acid and potassium cyanide, next to the opium preparations, just now seem to be the favorites. If the papers must give the name of the poison, they might do well to give in full the effects, especially of carbolic acid, for no poison can cause a more horrible death, and were the public to be informed of its terribly corrosive nature it would not be the choice of so many suicides, and a knowledge of the tell-tale marks would cause poisoners to hesitate before using carbolic acid.

GAILLARD'S MEDICAL JOURNAL.

VOL. LXXIV. NEW YORK, JUNE, 1901. No. 6.

TETANUS.

By THOMAS C. CRAIG, M.D., Brooklyn, N. Y.,

Attending Physician Brooklyn Home for Consumptives; Surgeon U. S. Navy (Retired).

It is only quite recently that the disease known as lock-jaw was discovered to be due to a germ. In former years all kinds of theories were advanced to explain the cause of this disease; thus it was thought to be due to climatic and terrestrial conditions, a warm and humid atmosphere, a wound produced by a rusty piece of metal, irritation of a nerve ending, or pressure on a nerve by some foreign body, etc., etc.

The last theory, or the pressure theory, was the most favorite one, and it is this theory that is yet held by many persons. It was in the year 1884 that Nicolaier first demonstrated that this disease could be caused by inoculating a small quantity of soil or dust obtained from the street or from cultivated fields, beneath the skin of an animal. Prior to this time we were taught that there were two kinds of tetanus—viz., the idiopathic and the traumatic.

A few years after Nicolaier's experiments the germ which causes this disease was isolated, cultivated and studied. At present it is fairly well understood, and a reasonable amount of experimental work is being done with it. The name of this germ is the tetanus bacillus. It is a small, delicate rod-shaped germ, and is produced from a spore. It may not be amiss to say that a spore is a small ovoid-shaped particle or seed, produced within the body of a germ, and intended to reproduce the parent form. In this particular bacillus the spore develops at the end of the rod, and thus gives it the shape of a drumstick, hence this organism has come to be called "the drumstick-shaped bacillus."

Around Brooklyn, and over a large part of Long Island, the soil is very plentifully supplied with these lock-jaw spores, and this fact explains why tetanus is so common an affection in this region. I have often seen a little of this soil introduced beneath the skin of a mouse, and in forty-eight hours the animal would be in the throes of an attack of tetanus, from which it always died.

Long before the cause of this disease was known to be due to a germ, it was found by experience that punctured wounds were very often followed by tetanus; further experience taught that the best treatment for these wounds was to lay them open by a large deep cut, and thus expose them to the air. No one knew why this treatment was excellent until after the germ of this disease had been discovered, and it was found that it was an anerobe—that is, a germ which will not grow in the presence of oxygen, but that it had to be cultivated in some other atmosphere, generally hydrogen. Then the mystery was explained as to why punctured wounds, more than any other kind, were more apt to be followed by tetanus; and that the laying open of these wounds often resulted in a cure. It was that in the punctured wound the spore adhering to the splinter, or nail, or whatever may have produced the wound, was carried far into the tissues, away from the atmospheric oxygen, and that in laying open these wounds the atmospheric oxygen was enabled to enter them. It was this contact of the oxygen that prevented the development of the germ; hence it is that in any case of wound where symptoms of tetanus appear, the opening up of the wound by a liberal incision, so as to admit the atmosphere, is the first and very best thing that can be and ought to be done.

The most trivial wound may be followed by tetanus, provided some of the living spores of this germ are carried into the tissues and the atmosphere is excluded. Quite recently, in this city, there have occurred several fatal cases of tetanus following or accompanying vaccination. The explanation of this intercurrent disease is very plausible. As was before remarked, the soil in this region is very prolific in tetanus spores, and it is a perfectly possible fact for the vaccinated person to convey some of these spores by his hands, or by his finger nails in scratching, to the site of the vaccination, and the exuding lymph to cover them over, and subsequently seal them off from contact with the atmosphere, and thus place them in a favorable position for development, and for the subsequent absorption of the toxin. I venture to say that this explanation could readily have been applied to any of these cases.

Tetanus spores seem to be very widely distributed, having been found in the dust and dirt from stables, on soiled surgical instruments, in animal ligatures, on clothing, in the sweepings from street cars, and in almost all other places to which man has access. Gardeners, agricultural laborers, and all persons who work with the horse, or in the soil, bear on their hands a virus, which only needs a bruise or a cut, but especially the former, to allow of its setting up the characteristic symptoms of tetanus in many cases. Soldiers, during a campaign, when their garments and equipments are soiled from contact with the ground during their camping, are always more liable to the disease than when they are hurt accidentally during times of peace.

In tropical countries, where persons are in the habit of going barefooted and of sleeping on the ground, tetanus is a more common disease than it is in the latitudes where these modes of living are not so much in vogue. Then again, the natives of some of the South Pacific islands have known for many years of the poisonous effects of earth in wounds, and, acting on this, they utilize a method of pasting some of this poisonous earth on the tips of their arrows. Stanley, the African explorer, speaks of these same kind of poisoned arrows being used by the Pigmies as their weapons of defense. The slightest scratch by one of these arrows produces one of two things, either tetanus or a "disease which is very probably associated, so far as we can see, with malignant edema or black quarter, a condition that was also described by Nicolaier as resulting from the inoculation of soil collected from gardens and forests." These Pigmies are forest dwellers.

On more than one occasion have I seen fatal tetanus complicate a severe frost bite of the toes, where a gangrenous condition had set in. Of course, this was long before the cause of this disease was known, and I suppose we attributed the tetanus to a pressure or irritation of the peripheral nerve endings. These spores are very resistant to the ordinary conditions surrounding them, and will retain their vitality for an almost indefinite length of time. One of the most prolific sources of tetanus is the ordinary toy pistol and the common Chinese firecracker. We are all familiar with the great number of cases of tetanus following every Fourth of July celebration. A case was related to me some years ago by one of the physicians in this city, where a boy had his leg crushed, and within half an hour the wounded boy was in a hospital—where the wound was seemingly thoroughly rendered aseptic. Yet in the course of a week or ten days fatal tetanus developed. Thus we see how widely this disease is distributed, how resistant the spores are to the ordinary germicidal action of sunlight, desiccation and temperature, and how that it may follow the most trivial abrasion of the cuticle.

The tetanus germ has been studied and expedimented with less than many other disease-producing germs, and this may serve to explain why our knowledge of it is rather limited, but enough has been learned to know that it produces a very powerful toxin. This toxin is peculiar from the fact that it has been found by Brieger to contain a peculiar body to which he gave the name of tetanine, and which when injected into mice cased their death by setting up a tetanus. "More recently Kitasato and Weyl have obtained the same substance by following Brieger's method, from a pure culture of this bacillus" (Sternberg's Immunity). Later researches by Brieger and Fränkel, and also by Kitasato, have shown the toxin to contain another substance, which they have named tetanotoxin, a yet more poisonous substance than the tetanin, and which has been called a toxalbumin.

These observers succeeded in separating a dried precipitate, "which produced characteristic tetanic symptoms and death when injected into mice in the dose of $\frac{1}{1,000,000}$ part of a gram."

"The purified toxin as thus obtained had a slightly yellowish color, and was in the form of transparent scales, which were odorless, tasted like gum acacia, and were easily soluble in water." "When injected beneath the skin of a mouse, weighing 15. gms. in the dose of .00000005 gm. ($\frac{5}{10,000,000}$ gm.), it causes its death, and one-fifth of this amount gave rise to tetanic symptoms from which the animal recovered after a time."

"The lethal dose for a man weighing 70 kilogm. is estimated by the authors named to be .00023 gm. ($\frac{2}{10,000}$ gm.). Comparing this with the most deadly vegetable alkaloids known, it is nearly six hundred times as potent as atropin, and one hundred and fifty times as potent as strychnia" (Sternberg).

"It is a somewhat curious fact that in tetanus, as in diphtheria, the organism seems to be localized at the actual point of inoculation, for although the bacilli may be numerous in the pus and in the walls of the wound and infiltrated tissues around the wound, they are confined to a well-defined and localized area, and the most careful researches, conducted with the help of both cultivation and histological methods, have hitherto failed to enable any observer to demonstrate the presence of these organisms in internal organs." It would then appear that as in the cases of septicemia and diphtheria, and quite a number of other diseases, the poison is elaborated by the organisms at the site at which they are actually introduced, and that from this point it is absorbed into the body, and is carried to the special tissues on which it acts. At first sight this seems to be extraordinary, that the development of the tetanus bacillus should be so extremely localized, and that the infecting area should be situated so near the surface. Yet when we come to examine more closely into the matter it does not seem to be quite so strange.

In the first place, these infecting wounds are generally filled with pus, which, as is well known, has very little oxygen in it, and what little it has is very soon appropriated by the leucocytes that escape into the abscess; thus there is produced an oxygen famine, and there results the very conditions favorable to the development of this anerobic germ. Should it by any chance get into the circulation it soon dies, for the blood, being charged with oxygen, becomes an unsuitable culture medium for it. Thus, then, the area of infection is localized at the wound of entrance.

Symptoms.—It is not my intention to enter into a detailed description of the symptoms of tetanus, but to merely give the more common manifestations of the disease.

Systematic writers speak of an acute and a chronic tetanus, but the disease as ordinarily seen is that which runs its course in from three to eight days. The virulence of the infection may account for the difference in duration and the mode of termination in this disease, just like it does in other infections. The peculiar symptoms of tetanus are persistent tonic contractions of all the voluntary muscles, with very painful paroxysmal cramps at frequent intervals.

Among the earliest symptoms are pain and stiffness occurring in the muscles at the back of the neck, these gradually increasing in intensity until the head is drawn back in a painful spasm. Next to this the muscles of mastication are involved, and the condition of trismus or lock-jaw results. The painful spasms and rigidity next extend to the muscles of the trunk—these feeling hard, tense, knotted and rigid. The body is in nearly all cases curved backward, in a condition of opisthotonos, this being often so extreme as to support it on the vertex and heels; instead of being curved backwards it may be curved forward, in a condition of emprosthotonos; or it may be curved to the side, in a condition of pleurothotonos, or it may remain in a straight condition of orthotonos. A very painful constriction is experienced in the epigistric region, extending to the back, and is thought to be due to spasm of the diaphragm.

These painful spasms occurring at long intervals at first, become more and more frequent, and finally are almost continuous; being excited by the least jar, or noise or irritation of a part. The sufferer tries to scream out with pain, but is prevented by his locked jaws and the fixation of the respiratory muscles. His countenance is distorted into a horrible grimace by the action of the risorius muscles. Unable to breathe he suffers from impending suffocation—while in the spasm interval this danger is palliated. Swallowing is difficult, mastication is only accomplished by the greatest effort, and, finally, is impossible. The patient is hungry and famished, but is unable to eat or drink; what little liquid nourishment he gets has to be taken between his clinched teeth, and forced down his throat by a superhuman effort. Sleep is impossible, the temperature is elevated, the bowels constipated, the mind is clear, the special senses are active, the pupils dilated, cutaneous sensation is not impaired but rather increased, while final dissolution is either by apnea or exhaustion or both combined, the body muscles passing immediately into a condition of rigor mortis.

When recovery takes place, it is slow and tedious.

DIFFERENTIAL DIAGNOSIS.

There are several diseases with which it is possible tetanus may be confounded: the chief of these are hysterical tetanus, and strychnia poisoning.

The following table may serve to differentiate them:

TETANUS.	HYSTERICAL TETANUS.	STRYCHNIA POISONING.
	Commenced with blindness and weakness.	Begin with exhilaration and restlessness, the special senses being usually much sharpened. Dimness of vision may in some cases be manifested later, after the development of other symptoms; but even then it is rare.
Muscular symptoms usually commence with pain and stiffness of the back of the neck, sometimes with slight muscular twitchings; come on gradually.	Muscular symptoms commenced with rigidity of the neck, which gradually "crept over the body," affecting the extremities last.	Muscular symptoms develop very rapidly, commencing in the extremities, or the convulsion, when the dose is large, seizes the whole body simultaneously.
Jaw one of the earliest parts affected; rigidly and persistently set.	Jaw rigidly set before a convulsion, and remained so between the paroxysms.	Jaw the last part of the body to be affected; its muscles relax first, and, even when during a second convulsion it is set, it drops as soon as the latter ceases.
Persistent muscular rigidity, very generally with a greater or less degree of permanent episthotonos, emprosthotonos, pleurosthotonos or orthotonos.	Persistent opisthotonos and intense rigidity between the convulsions; and after the convulsions had ceased the opisthotonos and intense rigidity lasted for hours.	Muscular relaxation (rarely a slight rigidity) between the convulsions, the patient being exhausted and sweating. If recovery occur, the convulsions gradually cease, leaving merely muscular soreness, and sometimes stiffness like that felt after violent exercise.
Consciousness preserved until near death, as in strychnia poisoning.	Consciousness lost as the second convulsion came on, and lost with every other convulsion, the disturbance of consciousness and motility being simultaneous.	Consciousness always preserved during convulsions, except when the latter become so intense that death is imminent from suffocation, in which case sometimes the patient becomes insensible from asphyxia; which comes on during the latter part of a convulsion, and is almost a certain precursor of death.
Draughts, loud noises, etc., produce convulsions, as in strychnia poisoning.	Desired to be fanned.	The slightest "Breath of air" produces a convulsion.
May complain bitterly of pain.	Crying spells in which he "sobbed violently" and "cried like a child," alternated with convulsions.	Patient may scream with pain, or may express great apprehension, or "crying spells" would appear to be impossible.
Eyes open, rigidly fixed, during the convulsion.	Eyes closed.	Eyes stretched wide open.
	The spasms in leg must have been partial, as the feet were crossed and toes inverted, which could not happen if all the muscles were involved, because the muscles of eversion, being very much stronger, would of necessity overcome the antagonistic muscles and the feet be everted.	Legs stiffly extended, with feet everted, as the spasms affect all the muscles of the leg. See Wood's Therapeutics.

Hydrophobia and tetanus resemble to a slight extent each other. "Both showing the reflex functions of the spinal cord to be in an exalted condition; both being spasmodic affections lasting ordinarily but a few days; both taking place, the popular opinion to the contrary notwithstanding, at all periods of the year; both presenting violent paroxysms of convulsions, which are often excited by the slightest touch or jar to the body; both frequently occasioning torturing pain near the pit of the stomach; both ensuing commonly upon an injury; both usually augmenting in intensity from hour to hour.

"In the one, deglutination may be difficult, in the other it is next to impossible, all attempts at swallowing, especially of fluids, exciting the most distressing spasmodic dysphagia. Then the irritability of temper; the fierce manner of the patient, his rabid, perhaps maniacal paroxysms; the constant thirst; the accumulation of stringy mucus about the angles of the mouth; the vomiting; the acute sensibility of the surface; the trembling of the muscles; the clonic instead of tonic spasms; the strangling sensation in the throat" (Da Costa), are all symptoms which point to a hydrophobic condition.

The late Dr. Flint remarks that hydrophobia is distinguished from tetanus by the absence of trismus, and the absence of delirium.

PROGNOSIS.

The mortality of cases of tetanus is given by Osler as 80 per cent., and by Wood and Fitz as 95 per cent. in acute cases.

All observers agree that the later the appearance of the disease, after the reception of the injury, the better the prognosis. Those cases in which the symptoms appear after the tenth day are more hopeful than in those occurring before that time. The prognosis is always more favorable where the wound of infection receives prompt and careful treatment at first; and where remedies are given early in the disease. Under these conditions the mortality has been reducd to about 45 per cent.

Then, again, the nature of the injury would have a decided influence, for on this will depend whether or not we are able to lay open the would and disinfect it. A compound fracture complicated by a gangrenous condition, or a deeply penetrating wound of the thorax or abdomen would be less easy to disinfect than a wound of the superficial tissues. Then, again, the virulence of the toxin, influencing as it does, the severity of the symptoms would be very important in a prognosis.

The prognosis is worse when the spasms extend quickly to the muscles of the trunk. Intemperance is also a bad factor in the prognosis. After abortion and labor, and after all abdominal operations the prognosis is very bad.

TREATMENT.

The treatment of tetanus may be divided into two heads, viz.: prophylaxis and medical.

Under the first or preventive measure should be included the proper disinfection and dressing of all wounds. Before attempting this the surgeon should make sure that his hands are aseptic, for the tetanus spores have been found in the dirt under the finger nails; next he should be positive that his instruments and dressings are aseptic. The high resistive power that the tetanus spore is endowed with renders it imperative that our sterilization should be thorough.

It requires a much greater temperature of dry heat to kill this spore than a moist temperature.

Our dressings should be dry sterilized at 150° C. for one hour, or at 100° C. in a moist temperature for twenty minutes, repeating this on three successive days; this last is known as fractional sterilization.

In place of either of the foregoing advantage may be taken of autoclave sterilization, where 150° C. or higher may be had in a short time, and continued for half an hour or more.

All wounds should be thoroughly cleansed of all foreign particles, then washed with soap and water, and then with sterile water. The wounds should be opened up and thoroughly disinfected with a 3 per cent. solution of carbolic acid, or a 1 to 1,000 solution of mercuric chloride, or a 2 per cent. solution of formaldehyde. If at any time pus appears or a gangrenous tendency is manifested, the dressings should be removed and the wound redisinfected.

In case of punctured wounds it may be necessary to lay open the original wound, by a deep cut reaching to the ultimate depth of it, and then treat it as an infected wound. The surroundings of the patient should be kept clean. Under surgical procedures amputation has been practiced, or the cicatrix of a healed wound has been excised, both of them with the result of removing the source of infection. The great trouble in many cases is that prompt action is not taken soon enough. A considerable amount of the toxin is absorbed, and the disease is well under way before a decision is reached.

Nerve stretching, nerve excision, counter-irritation, etc., have only to be mentioned in order to be condemned, as irrational and useless expedients.

Blood letting has been tried, but I cannot see how this can mitigate the disease, except by removing the small quantity of the toxin which is contained in the drawn blood. Transfusion has been resorted to, but it can only do good by diluting the blood.

We now turn to the second part of the treatment, viz.: The medical. I think we may gather from experiment and symptoms that the poison of tetanus is a direct excitant of the motor tract of the cord and the motor areas of the brain, and it is to the physiological action of remedies which influence these regions, that the selection of our remedies, and the application of them should be directed.

A large number of remedies have been used in this disease, but it seems to me that the cardinal points to be kept in mind are:

1. To treat the wound locally.
2. To try and eliminate the absorbed toxin, by the kidneys, the skin and by the bowels.
3. To support the vitality of the patient.
4. To select and apply our remedies so as to act on the motor cells of the cord and brain or to antagonize the action of the toxin by an antitoxin.

REMEDIES.

From the known physiological action of bromide of potassium we are led to believe it is one of the best drugs we can use in this disease.

Lowering, as it does the reflex excitability of the spinal cord; but to be of any advantage it must be given in large doses.

Chloral is another remedy that promised much, but in its use disappointment has resulted.

But to be of any use it must be given in maximum doses, of from 90 to 135 grains a day, cases of recovery are recorded where chloral has been given in amounts to ʒiij to ʒvj in 24 hours. It has been suggested to give chloral and morphia alternately.

Calabar bean was greatly lauded as a remedy in this disease, but its use has now been abandoned.

Opium has been largely used in the treatment of tetanus, but to be of any service must be given in extremely large doses.

On account of its action on the motor nerves curara was at one time regarded as promising to be a useful agent in lock-jaw, but of its use Gowers says: "Spasm is probably lesened by the influence of curara on the intra-muscular nerve endings, as it is not known to have any influence on the spinal cord. It appears only to avert death from spasm by bringing the patient equally near to death from paralysis."

At one time the hypodermic use of watery solution of iodine, in potassium iodide solution, was brought forward as a remedy, but no extended series of experiments have as yet been made.

Inhalations of chloroform or ether may be used to relax spasm; and likewise amyl nitrite has been suggested, but prolonged narcosis is dangerous on account of heart paralysis.

Lately the treatment of tetanus by the injection of an immunizing serum has given strong hope that we will soon be in possession of a valuable remedy. Experiments made with this antitoxin have shown that it is possible to cure light cases of the disease, but to do this the remedy must be used early. The trouble heretofore has been to get an antitoxin of a high potency value.

A considerable number of cases have been treated with this antitoxin, and so far it has shown a reduction in the mortality from about 88 per cent. to 35.7 per cent., but in order to bring about this result very large amounts of the serum must be used.

Recently Morchcowitz, of New York, has collected the records of 290 cases of tetanus treated by the subcutanous use of antitoxin; of these 173 recovered, and 117 died, a mortality of 40.33 per cent.

The injection of this antitoxic serum into the meninges of the brain has been tried with seemingly good results; and it has recently been suggested to inject it into the spinal sub-meningeal space, the same as is now done in spinal cocainization. The best form of this antitoxin to use is the dried powder as is prepared in France. This is soluble in water, and is free from all impurities.

Within the past few years the treatment of tetanus by means of hyperdermic injections of carbolic acid has been practiced with a remarkable series of recoveries.

This subject was written up by Dr. H. C. Wood, Jr., in *Merck's Archives* for May, 1899.

This treatment originated with Baccelli, and, strange to, say, has been used almost exclusively in Italy. The carbolic acid is given in doses of .2 gm. at two and three hour intervals, rapidly increasing the dose to double and triple the quantity, a 2 per cent. solution being used for the purpose. Tetanus patients bear large doses of this acid, although death has been caused by the dosage in some cases. The average dose for an adult is about .72 gm. daily of the pure acid.

Comparing the serum treatment with the carbolic acid treatment the following table has been constructed. Baccelli using the carbolic acid, while Tizzoni and Behring used the serum.

Method.	Cases.	Deaths.	Average duration of treatment.	No. of cases where other treatment noted.	Per cent. mortality.
Baccelli......	34	1	25 days.	11 cases.	3.2
Tizzoni......	42	7	23 days.	8 cases.	17.8
Behring......	28	10	33 days.	2 cases.	35.7

You will notice the small per centum of deaths under the carbolic acid treatment, and the comparatively high mortality under the serum treatment.

Dr. Wood concludes his article by saying: "That it is perfectly conceivable that carbolic acid may act as an antitoxin." "Moreover, carbolic acid has specific relations with the nervous system, and although its pharmacological properties are not distinctly made out it may well be that it acts also by directly affecting the centers attacked."

He sums up by saying that:

"1. Carbolic acid gives better results in tetanus than does the antitoxin treatment.

2. It acts by antagonizing the toxin and by quieting the nervous system.

3. It should always be given hypodermically, and in large enough doses; cases of tetanus being remarkably tolerant towards it.

4. Other methods of treatment should be continued, of which the discoverer lays special stress on the local disinfection of the wound."

In the *International Journal of Surgery* for Febuary, 1901, Dr. J. J. Thomas gives a few interesting facts concerning the treatment of tetanus locally by means of carbolic acid. He says: "I have been employing for some years in lacerated wounds of the extremities, where healing by first intention is not looked for, nail punctures, etc., or wherever the one complication to be feared is tetanus, pure carbolic followed by alcohol in quantity sufficient to prevent damage from the acid." "In punctured wounds I employ a metal tube some two inches in length, with probe point and screw fitting, which can be attached to a common hypodermic syringe. Charging the syringe with carbolic acid, the tube is thrust down to the bottom of the wound, and as it is gradually withdrawn the acid is deposited along its entire track. Expelling the remaining acid, the syringe is quickly cleansed in the usual manner and recharged with alcohol, and the operation repeated. Rusty-nail and toy-pistol wounds, if early treated in this manner, would never be followed by tetanus." "Alcohol antagonizes all harmful effects of carbolic acid, if used promptly."

There is very little danger in using carbolic acid locally in wounds. The writer has frequently applied pure carbolic acid to abscess cavities, after first using the Volkman spoon, and in no case was any damage done.

PRACTICAL RESULTS FROM EXAMINATION OF THE STOMACH CONTENTS.*

By E. GUY HOPKINS, M.D., Richmond, Va.

Americans have been called a nation of dyspeptics, and while the statement may be an exaggeration, the fact remains that gastric disorders constitute a large proportion of the average doctor's practice. The frequency of the trouble and the unsatisfactory results that follow its empirical treatment have impressed me with the importance of making a more accurate diagnosis, and impelled me to study the recent methods practiced in the clinical laboratory by which the essential cause of the frequently complex group of symptoms can be isolated. In every disease the early and correct diagnosis must precede the logical and successful treatment. The frequently recognized difference of ability on the part of members of the medical profession is usually a difference as a diagnostician, not as a therapeutist.

No one who claims to be progressive can afford to be ignorant of the results which often follow the chemical and microscopical examination of the stomach contents; and no one who wishes to be successful can afford not to avail himself of the indications they reveal for direct and appropriate dietetic and medicinal treatment. No one would treat a case of Bright's disease without examining the urine; yet many still prescribe for a case of dyspepsia without examining the stomach contents. In reality, the work of Boas, Kussmaul and others in gastric pathology, has developed diagnostic points of greater importance than those brought out by Bright and Christison in renal pathology, because of the greater frequency of diseases of the stomach as compared to diseases of the kidney and their greater amenability to treatment.

The examination of the contents of the stomach is often the only means of arriving at a definite diagnosis; and it affords an immediate and accurate insight into the actual pathological processes present. By it, we may determine in what way the functions of the stomach are perverted—whether the motor or secretory functions are increased, diminished or absent.

The *peristaltic action* of the stomach may be increased: the therapeutic indication would be sedative; it may be diminished: the treatment indicated stimulative. *Lactic acid* may be found present after a test meal free from lactates, a condition almost pathognomic of cancer, making it necessary to consider the advisability of an exploratory incision. *Gases*, such as sulphuretted hydrogen, carbon dioxid, etc., may be found, indicating fermentation and calling for sterile food and gastro-intestinal antisectics. *Bile* may be persistently present, indicating stenosis of the descending part of the duodenum. *Bacteria* are always present, but certain types have special significance. Abundant sarcinæ, when present, contraindicate the existence of carcinoma, but point to benign stenosis or greatly diminished motor function. The Oppler-

---

* Read before the Richmond Academy of Medicine and Surgery.

Boas bacillus is found in the majority of cases of cancer, rarely in other affections. *Mucus* in large quantity, indicates a chronic gastritis. *Fragments of tissue* found in the washwater are of great diagnostic value in showing the real state of the gastric mucosa; and their microscopical examination often differentiates gastritis from a neurosis, or determines the presence of malignant growth.

As illustrative of the practical results of the examination of the stomach contents, I have selected five cases to report, from twenty-six which I have recently had under observation. These five are taken because they are all chronic cases that had been treated by the usual routine methods without success, and also because they represent a variety of conditions of gastric derangement which they typify. All yielded readily to the treatment indicated by the analyses, except Case 2, which was one of inoperable carcinoma of the cardia. In regard to the technique adopted in these examinations, it is merely necessary to say that the test meal of Ewald, consisting of a roll, or two pieces of toast, and a glass and a half of water, was generally chosen because of its convenience; that of Boas being used only in cases of suspected carcinoma. Dimethylamidoazobenzol and phloroglucin-vanillin solutions were the tests for free hydrochloric acid. Ufflemann's and Strauss' tests were used for lactic acid; and Topfer's method was adopted in the quantitative estimation of the factors of acidity.

Case 1.—*Carcinoma of the pylorus.*—Capt. W., aged 44 years; patient of Dr. Tayloe of North Carolina; admitted to St. Luke's Hospital October 23, 1900; family healthy. Had been suffering from indigestion, which had gradually grown worse, for eighteen months. Food was retained in the stomach for an hour or two with great discomfort, then vomited. There was no pain, hematemesis or cachexia; a tumor could be felt in the upper part of the abdomen; he had gradually lost forty pounds in weight. Examination of the stomach contents after a test meal, showed complete absence of free hydrochloric acid, and the presence of about two-tenths per cent. lactic acid. A diagnosis of cancer of the pylorus was made, and pylorectomy was performed by Dr. Stuart McGuire, October 30, 1900. Microscopical examination of the specimen removed verified the chemical diagnosis. The patient when last heard from, December 15, 1900, had gained thirty-eight pounds in weight, and was feeling perfectly well.

Case 2.—*Carcinoma of the cardiac end of the stomach.* Mr. F., patient of Dr. Hodges, had a history of injury to the back, followed by peculiar nervous symptoms and pain in the back, chest and limbs which the patient was forced to control by alcohol and morphine. Swallowing gradually became so difficult that he had to confine himself to liquid food. The diagnosis lay between nervous spasm of the cardia, benign stenosis and carcinoma. Upon the introduction of the stomach tube after the ingestion of some water, a small quantity of bloody fluid and fragments of tissue, which had been dislodged by the tube, were expelled. Microscopic examination revealed the structure of carcinoma. This case, on further examination, was deemed inoperable, and palliative treatment was instituted.

Case 3.—*Achylia gastrica.* Mrs. J., apparent age 45, had suffered for over a year with gastric discomfort, eructations of gas after eating, alternating diarrhea and constipation, heavy bearing down feeling in the abdomen, flatulence and discharge of yellow mucus and frothy material at stool. She had become very much weakened; was frequently disabled for household duties; and had been treated with every known anti-ferment, tonic and digestant, but without success. An examination of the gastric contents made March 9, 1901, showed an entire absence of free and combined hydrochloric acid, and a total acidity of 16, due to acid salts and volatile acids. The microscope showed abundant bacteria and yeast. The line of treatment adopted was to supply the deficient gastric secretion, to prevent fermentation, and to furnish a diet as easily digested under the existing conditions as possible. The first indication was met by giving dilute hydrochloric acid, twenty drops, fifteen minutes after eating, and the same quantity half an hour later; the second by a mixture of resorcin, salicylate of bismuth and powdered rhubarb; and the third, by a soft, well cooked, finely divided mixed diet free from fats and sweets. Since instituting this treatment, the patient has steadily improved. She is stronger and able to attend to her work; has gained weight; the gastric distress and abdominal pain have disappeared; the bowels have become regular, and she is rarely troubled with excessive flatulence.

Case 4.—*Hyperchlorhydria.* Mrs. T., aged 40 years, patient of Dr. Stuart McGuire; for three years had suffered from indigestion and symptoms of lithemia, viz., headache, malaise, vertigo, constipation, etc., and for a long time had confined herself to the Haig dietary, but without relief. She was first seen by the writer February 20, 1901. Her condition was markedly neurasthenic; she complained of intense discomfort in the stomach, somewhat relieved immediately after eating, but worse after an hour or two; acid eructations; utter wretchedness; inability for mental or physical activity; and a peculiar feeling of constriction at the top of the head. Examination of the stomach contents showed free hydrochloric acid 70, or nearly twice the normal, and total acidity, 100. The line of treatment adopted was directed to sedation of the nervous system and neutralization of the excessive acidity of the gastric juice. The first was accomplished by rest, static electricity, tincture of valerian and Hoffman's anodyne. The second indication was met by a diet consisting of a maximum of easily digested food, a minimum of carbohydrate food, and direct neutralization of the acid by the alkalis, sodium bicardonate and calcined magnesia. Gastric discomfort was immediately relieved, and the neurasthenic condition gradually yielded to sedative treatment, so that now she feels perfectly well and has stopped all medicine, but still keeps up the prescribed diet.

Case 5.—*Atonic dilatation with subacidity.*—Mrs. W., aged 45, had suffered from dyspeptic symptoms and headache for years. These had been attributed to chronic lithemia, or derangement of the liver. Her dyspeptic symptoms had gradually grown worse, and symptoms of serious intestinal disorder made their appearance. On December 3, 1900, when the writer first saw her, she had just returned from a New York sanitarium, where a diagnosis of intestinal tuberculosis had been made, and the case regarded as hopeless. She was greatly emaciated, weighed seventy pounds; her jaws and limbs were frequently in that peculiar state of tonic contraction known as tetany; and she was so weak that she could not raise herself in bed without assistance; the heart action was weak and irregular; appetite completely lost; and nausea constant and attacks of vomiting frequent. Diarrhea was excessive, the stools being very offensive, light colored, frothy and mixed with mucus; flatulence was also excessive. Although apparently contraindicated, analysis of the stomach contents was thought advisable. This was made December 5. Free hydrochloric acid was absent; combined hydrochloric acid, 4; and volatile organic acids, but no lactic, were present. In subsequent washing of the stomach, it was found that it invariably contained food ingested the day before, and that its capacity was considerably above the normal. The treatment was first directed to controlling the tetany, for which bromides and morphine were necessary. Dilute hydrochloric acid was given to supply the deficiency in the gastric juice and for its antiseptic action, in doses of twelve drops, gradually increasing to twenty drops, after eating. Tincture of digitalis, fifteen drops, with whisky, a half ounce, was given three times a day, for its tonic and stimulant effect on the heart. The diet was first liquid: Bouillon, milk, etc., in small quantities at frequent intervals; then gradually increased in variety, omitting sweets and fats. Improvement began immediately. Tetany disappeared; morphine was stopped in ten days; the nausea and vomiting were relieved; appetite reappeared; and she gained forty-three pounds since treatment was instituted, weighing now 113 pounds. She says she is better than she has been for years.

513 East Grace Street.

DISCUSSION.

Dr. Wm. S. Gordon said that most of the cases, as described by Dr. Hopkins, went from one physician to the other, giving the credit of cure to the last. The doctor had well said that it was just as unscientific to arrive at a diagnosis of Bright's disease without urinalysis, as of stromach troubles without proper examination of its contents after a test meal. Unfortunately, physicians in active practice could not well make these examinations, though it was their duty to do so. A case of his showed the opposite side of the picture. The patient, a woman, was nervous and suffered from an annoying, burning pain at the epigastrium. There was a little cachexia: and vomiting was present, but the vomitus exhibited no blood or coffee-ground sediment. Two analyses of the stomach contents were made by Dr. Hopkins, revealed almost entire absence of hydrochloric acid, and presence both times, of lactic acid and the Oppler-Boas bacillus. An exploratory incision was advised, but full consent was not given. Hydrochloric acid was administered and resulted in two weeks in the entire cessation of all stomach symptoms. The patient previously had craved acids to such an extent that she used them three times daily, and he had no doubt the practice injured her. As soon as the remedy was given her, the craving ceased. The functions of the stomach, Dr. Gordon said, depended largely upon its nervous supply: Given no extraneous troubles and the nervous system in good order, almost anything could be eaten, but not otherwise.

Dr. Wm. T. Oppenhimer believed that the majority of stomach troubles resulted from overeating. He thought the methods as applied by Dr. Hopkins were the correct ones for arriving at the proper plans for treatment; but along with them, food adulteration and the foods that produced certain disorders should be studied connectedly, thus ascertaining cause and effect. Most of the baking powders now on the market were undoubtedly productive of great harm.

Dr. Virginius Harrison asked if examination of the stomach contents revealed the cause of the trouble; or was it but in aid in feeding.

Dr. H. H. Levy: It must be admitted that most valuable information may be derived from careful chemical analysis of the stomach contents; but various considerations render impracticable the submission of many of our dyspeptic cases to the expert. Fortunately, careful physical examination will enable us to recognize such unnatural conditions as dilatation of the stomach or gastroptosis; and careful inspection of stomach washings at different intervals, and after meals of different composition, will give us valuable information as to both the muscular power of the organ and the relative digestive capability of its secretion. Often, a careful inspection of vomitus, with a knowledge of the time at which the next preceding meal, or meals, had been ingested, informs us plainly as to the functional defects of the stomach. Where the indigestion is acute, we often have the most conclusive proof that the digestive failure is due to what we might term a nervous cause. As applying to the more chronic forms, which we denominate dyspepsia, the point made by Drs. Gordon and Harrison that, doubtless inadequate nerve supply to the secretory apparatus of the stomach is frequently the basis of the trouble, seems well taken. The speaker knew a professional man who suffered, when fully occupied, from distressing dyspeptic symptoms, who could digest with comfort only a moderate amount of tender meat taken once a day, and with whom all other kinds of food disagreed; but when this gentleman was away from his work, he could take with enjoyment and no subsequent discomfort, a very varied diet. The explanation was that the demands made upon his nerve force by his heavy work were so great as to leave too small an amount to properly stimulate the secretory glands of the digestive tract.

The success attending the administration of strychnia or nux vomica and of the hypophosphites in cases of atonic dyspepsia was notable. He had most satisfactory results from the employment of tincture of nux vomica, in ten-drop doses, mixed in a cupful of hot water, slowly sipped, about a half hour before meals.

Dr. Levy did not mean to discountenance systematic chemical and microscopical examination of the stomach contents for purposes of diagnosis and determination of proper dietetic and medicinal treatment. In obscure or intractable cases, we should be glad that we may have the assistance of an expert; and he appreciated the work done by the reader of the paper.

Dr. Gordon said he did not mean to undervalue the influence of either the quantity or quality of food in stomach disorders. Patients did have dyspepsia from overloading the stomach; but examination of its contents revealed what was at fault. Diet had to be corrected in nearly every instance; and nature would then react if the nervous system were in good order and no abnormal extraneous condition existed.

In this connection Dr. Hopkins had examined the various text books and found that a number stated that if the correct amount of hydrochloric acid were secreted, the gastric juice would invariably contain sufficient pepsin. He did not believe this, for the blood might not contain the necessary quantity of albuminous materials for the latter, and yet the required quantity of the former could be present.

Dr. Levy said he did not remember having seen or heard the point raised; yet he believed that pepsin was not always present in the gastric juice in sufficient amount. Mineral acids, as phosphoric, would aid digestion as well as hydrochloric; and if food remained undigested too long after the administration of these acids, it looked as though the quantity of pepsin were not enough. In cancer, in which there was great alteration of structure and absence of hydrochloric acid, it was certainly often observed that food was rejected as much as twenty-four hours after its ingestion.

Dr. Hopkins, in closing the discussion, said that the lactic acid in Dr. Gordon's case was attributed to the bread of the Ewald test meal, but that there was none after the Boas meal. Replying to Dr. Harrison's question, he said that the cause was very often found by examination of the stomach contents; for instance, total and persistent absence of free and combined hydrochloric acid indicated permanent atrophy of the gastric glands. In other cases, while the cause might not be well defined, the therapeutic indication of the analysis might be invaluable, as in cases of subacidity where the free acid was deficient or absent, and the combined present. Administration of hydrochloric acid would then stimulate its secretion by the stomach. Regarding the formation of pepsin, Hemmeter, Eichorst and others stated that when free hydrochloric acid was formed, there was always a sufficient amount of pepsin. There were no reports of analyses, the statement being based presumably upon cases in which the amounts were estimated.

DISINFECTION WITHIN OR WITHOUT THE BODY IN DIPHTHERIA.*

By M. A. VEEDER, M.D., Lyons, N. Y.

The effectual control of diphtheria in an individual or a community is a problem that is exceedingly complex. Really, there are at least three forms of disease that have been confounded under the name of diphtheria. It is only since bacteriological methods of study have come into use that these have been distinguished from each other with precision, they formerly having been regarded as modifications of the same disease, rather than as separate diseases. They are diphtheroid, characterized by the presence of staphylococci, mostly; true diphtheria, characterized by the presence of Klebs-Löffler bacillus; and septicemic sore throat, characterized as a rule by the presence of streptococci.

Although these diseases occur separately from each other, they are nevertheless often associated in a characteristic way. Diphtheroid predisposes to the onset of diphtheria, so that if a patient having the former is exposed to the infection of the latter, diphtheria begins at once without an incubation period. In like manner either diphtheroid or diphtheria may prepare the way for septicemic sore throat. Indeed it is doubtful whether streptococcus infection can establish itself in the throat at all without some pre-existing disease, or lesion of the parts, just as erysipelas starts from some small scratch or puncture. Thus the septicemic form of sore throat, although very fatal, is not very contagious.

Diphtheroid is a harmless affection except as it predisposes to diphtheria, or septicemic sore throat, or both. Diphtheria in and of itself is dangerous, but it is most dangerous if it becomes the channel through which septicemic infection gains access to the body.

As against the streptococcus infection, antitoxin is powerless, but the antistreptococcus serum may be used with good effect. It is a peculiarity of the streptococcus to locate itself in the exceedingly tough and foul-smelling membrane that is characteristic of these cases. Hence the application of strong disinfectant remedies accurately to this membrane, as, for example, painting it with pure carbolic acid, has appeared to be of service, this being a measure not to be recommended in ordinary diphtheria.

Erysipelas, puerperal fever and septicemic sore throat are all forms of streptococcus infection, closely related to each other. Indeed, all these diseases may originate each other, the liability so to do depending upon the location of the infection in or on parts of the body accessible to touch rather than upon differences in the nature of the infection itself. The physician attending cases of either of these kinds, for his own security and that of his patients, must apply the principles of surgical cleanliness accurately and completely. It may become necessary to go so far even as to abstain from seeing cases of ordinary diphtheria, lest they become septicemic through contact of the physician in attendance upon erysipelas, puerperal fever, or septicemic sore throat. During epidemic prevalence of diphtheria the occurrence of diseases of either of these classes may have a special significance, and should be carefully watched, with full understanding of the danger involved.

---

* Read at the meeting of the Medical Society of the State of New York.

Furthermore, every surgeon knows that the danger of septicemia is very much increased if operations are undertaken in buildings where the plumbing is bad, and where there are untrapped drains. It is true that antiseptic dressings decrease the risk somewhat even under the most unfavorable surroundings, protecting the wounded surface more or less completely. But a sore throat cannot be protected every hour and minute as is done by such dressings, and if that throat be diphtheritic, the barriers against septicemic infection are as absolutely down as though they were an open wound. The traditional prejudice against foul drains and the like are a source of specially malignant diphtheria is not without warrant. Indeed, such receptacles and not the throat itself appear to be the natural habitat of infection of this class. If carried on the person it is by accident rather than as a part of the usual life history of the streptococcus infection.

The Klebs-Löffler bacillus, on the other hand, appears to find its habitat in the throat, it becoming more or less atypical when grown in culture media outside the body. Although irregular in form, and having its presence masked by other micro-organisms, there is nothing to prevent its growth in the albuminous matter crusting the interior of drain pipes that are never cleaned or flushed, unless it be too low a temperature at times. But the dried sputum from a diphtheria patient kept at ordinary temperatures has been found capable of originating living colonies of the bacillus for six months. This being the fact, Klebs-Löffler bacillus certainly could remain alive perhaps from year to year in underground drains, although leading a fluctuating and precarious existence. Such receptacles are especially liable to contamination through rinsings or expectoration from the mouths of persons having diphtheria, and thus also the infection may be renewed and kept alive, the persons living on the premises originating their own antitoxins and becoming immune. Where this has happened, quarantine and antitoxin, no matter how carefully applied with the aid of bacteriological tests, fail to eradicate the disease completely. The writer has encountered what appears to be beautiful illustrations of this in three or four large institutions.

In an emergency of this sort, where it is not possible to wait for the improvement of the drain pipes and plumbing, it is well to know that such fixtures when incapable of being flushed adequately can be sterilized by the aid of chlorine gas. In the presence of the septicemic form of sore throat especially this resource may be of the highest importance.

Nor is the diphtheroid form of sore throat unimportant. This form of throat trouble is much more common at all times than is generally supposed, not attracting attention, recovery being so rapid, unless the more serious diseases of the throat become prevalent, whereupon numerous cases of this sort are brought to the attention of the physician, and are commonly classed as diphtheria for reasons that will appear shortly.

As has already been intimated, diphtheroid disposes both to diphtheria and to septicemic sore throat shortening the incubation period to such an extent that the bacteriological test may show the throat clear from diphtheria one day and strongly infected the next. There being such increased susceptibility, a diphtheroid case may become diphtheria in the very act of examination unless adequate precautions are taken.

The fact that the physician's own throat is not red or sore is not proof that it is not infected, for infection often occurs without symptoms, particularly in adults when strongly exposed, and there is no stronger exposure than to receive the spray that comes from the mouth and nostrils of a child that is crying and coughing, as they often do, during an ordinary examination of the throat. The writer has met with very conclusive evidence that such particles of spray floating in the air are able to convey the Klebs-Löffler bacillus a distance of several yards. If the physican thus infected during an examination goes to another case without proper precaution, even though it be at an interval of several days, his own breath and spray from his lips in the act of talking, if nothing more, may convert a case of harmless diphtheroid into severe diphtheria in an hour.

This is the danger also that militates against the use of the bacteriological test to determine whether quarantine shall be established or not. Such testing can be relied upon with the confidence at the outset of quarantine only when it can be known with certainty there is no secondary source of infection such as that just described. In other words, unless physicians in attendance upon cases of diphtheria or moving about in a community where there is diphtheria, have their own throats tested in order to see whether they themselves are clear of infection, and especially whether any precautions they may take are inadequate, it is better to regard all cases of diphtheroid as diphtheria, provisionally, using the bacteriological examination mainly for the removal of quarantine rather than for its establishment. If these suggestions are followed out thoroughly there may be a surprise awaiting not a few members of the profession. The very anxiety that leads to seeing cases frequently and testing and examining them often may be a means of spreading the disease.

The routine that the writer has been led to adopt is to be provided with squares of antiseptic gauze and corrosive sublimate tablets. A square of such gauze may readily be held over the mouth and nostrils with the left hand, while the right hand is free to use the tongue depressor or swab. Both hands and face should be wet with the sublimate solution before and after examination, and the gauze may be burned after being used. This, together with frequent spraying and cleansing of the mouth and throat and nostrils, and bacteriological testing, affords very complete security against either giving or receiving infection.

There are many precautions that may readily suggest themselves in regard to the care and disinfection of articles that have touched the mouth and lips, and on which infection may remain for extended periods in the form of dried saliva. Perhaps the worst of all such articles is an ordinary lead pencil, the use of which should be absolutely forbidden every diphtheria patient.

The infection of milk through the agency of some one having a diphtheritic throat, coughing or sneezing while handling it, seems to have occurred in a case or two that have come to the knowledge of the writer. Sterilization of milk by boiling is the proper method during diphtheria epidemics, and always.

As regards ridding the mouth and throat of the infection, there are a few points that deserve more extended notice than can be given them on this occasion. Especially important is the behavior of the diphtheria bacillus where there are cavities in the teeth. In such cases the person thus infected becomes immune as if from antitoxin, but there is frequent recrudescence of the sore throat trouble, more or less typical in its resemblance to ordinary diphtheria. Often there are red spots somewhere near the bad tooth, or exactly opposite on the interior of the cheek. These come and go, and there may be evanscent traces of membrane on the tonsils at intervals of weeks or months. Bacteriological examination at times shows the presence of the bacillus and at times its absence. Sometimes it can be found by inserting the swab into the tooth cavity when not apparent elsewhere in the mouth. A very interesting case of this sort under the observation of the writer, after an exceedingly prolonged quarantine, infected another person through the intermediary of a lead pencil, showing that although the bacillus had been present and absent in a curious way, and the throat symptoms had varied fitfully, that nevertheless there was true diphtheria infection throughout a period of at least four months. In this case there was a deep cavity between two teeth and recovery was not perfect until the tooth itself was removed.

In these cases the bacillus appears to be nourished by fresh supplies of particles of food, such as meat and potato, lodging in the cavity, as in a culture tube at each meal. Thus the process is perennial, and the infection does not die out as it does when the throat alone is infected. It would seem that sterilization of the tooth cavity by cauterization would reach the source of the trouble at once, but it does not, the few bacilli remaining elsewhere in the mouth apparently reinfecting the cavity. A better plan is to insert a pledget of cotton saturated with some disinfectant solution before and after meals. Even then in very bad cases it may be necessary to have the tooth extracted.

An observation of this sort is very suggestive as to the amount of care required to be of any material service in ridding the mouth and throat of diphtheria infection by methods of disinfection. The perfunctory use of sprays, swabs or gargles accomplishes so little, apparently, in shortening the time of quarantine that some physicians practically have come to rely on giving the antitoxin and waiting. But where the infection is harbored and kept alive in the manner that has just been described, neither the antitoxin nor waiting will insure recovery within any reasnable length of time. Meanwhile the person may have infected unconsciously an entire neighborhood or town.

Very likely the bacillus when lodged in the spongy portions of the tonsils, will die out gradually as the person becomes immune, but the process of its removal may be hastened and made more secure by constant sterilization of the parts as far as possible. Remedies for this purpose should not be irritating, so that they may be employed constantly at very frequent intervals, the growth of the bacillus and its diffusion through the mouth being very rapid. Peroxide of hydrogen, made alkaline by lime water, or by the addition of equal parts of Dobell's solution, is very good. Freshly made chlorine water with the addition of a little tincture of iron is highly efficient. A soft camel's hair toothbrush kept in a two per cent. solution of carbolic acid and used with a lather of castile soap is of great service, as is also dental floss drawn between the teeth. Such measures persisted in will clear up the most refractory case as determined by bacteriological examination, as a rule, in about a month, very few cases showing perfectly clear in as short a time as three weeks.

It has been the purpose of the present discussion to outline a few leading features, so that whatever measures of disinfection are adopted, whether within or without the body, they may be used with full knowledge of the dangers and difficulty and complexity of the subject of the control of diphtheria.

THE TREATMENT OF ECZEMA AND OF ITCHING BY TUMENOL.

By J. W. WAINWRIGHT, M.D., New York.

A very considerable proportion of modern agents for the treatment of skin diseases depend for their usefulness upon the property of abstracting oxygen from all substances, capable of yielding it, with which they come in contact. The reason why this reducing virtue is of such value in restoring the diseased skin to a healthy condition, or, perhaps, one should say, in enabling the skin to resume its natural functions, is not perfectly clear.

In those diseases which are of parasitic or bacterial origin it is assumed that the remedy by withdrawing the oxygen from the superficial layers of the skin renders it unsuitable as a soil for the micro-organisms to grow in, and so cuts short the morbid process.

In this class of reducing agents we must include tumenol, a new remedy, to which the attention of the medical profession is called with the more confidence, since it is not recommended as a panacea in dermatology, but simply against two abnormal conditions of the skin.

Under the name "bitumen" (from the last two syllables of which "tumenol" is derived) mineral pitch or oil is mined and worked in many different parts of the world. Sometimes the crude mineral is solid (asphalt) sometimes it is liquid (petroleum). The former variety is subjected to dry distillation, yielding benzol, naphtha, paraffin, and various other liquid and gaseous hydrocarbons; the natural occurrence of such a process is believed to give rise to petroleum—a distillate from Nature's laboratory.

The petroleum obtained naturally or by distillation is purified for various purposes by successive treatment with diluted sulphuric acid, alkali and water. In all mineral oils there is a certain class of unsaturated hydrocarbons which are acted upon by strong sulphuric acid, but nevertheless are not impurities; the parent substance of tumenol were found in these unsaturated hydrocarbons as contained in the distillate of a bituminous mineral from the Messel mine near Darmstadt, in Germany.

The method of isolation consists in purifying the mineral oil from creosote and acid bodies and from bases (pyrrol and the like) and then treating with concentrated sulphuric acid. Sulphurous acid gas is given off and a dark-colored acid syrup separates, which consists in a mixture of sulphone and sulphonic acid; this, when washed with water and solution of common salt, forms tumenol. By separating the sulphone from the sulphonic acid two other forms of the remedy are obtained called, respectively, tumenol oil and tumenol powder.

The sulphone or oil is a viscid, dark-yellow liquid freely soluble in ether and benzol; it is insoluble in water, but the aqueous solution of tumenol sulphonic acid or powder takes it up, acquiring at the same time a strongly bitter and aromatic taste.

The sulphonic acid left in aqueous solution after the sulphone has been extracted, forms, if entirely freed from water, a dark-colored powder of peculiar, feebly-bitter taste. The powder is readily soluble in water, and the solution may be evaporated to a syrupy consistence without separation. We shall see that in most cases this concentrated aqueous solution is preferable to the dry pulverulent form. The most important property of these preparations is believed to be their marked reducing powers. Per salts of iron are reduced by them to proto-salts, permanganate of potassium into an oxide of manganese and corrosive sublimate into calomel. This ready oxidability is ascribed to the unsaturated character of the compounds; a positive evidence that this is so is afforded by the observation that they take up the halogens, chlorin, bromin, etc., with great eagerness. In the case of the sulphone it has also been noted that it reduces a further quantity of sulphuric acid when treated with it, sulphurous acid being evolved.

Therapeutical Properties and Uses.—Tumenol is not a new, untried remedy, but has been employed for nearly two years by Professor Neisser, of Breslau. The remedy was employed in a number of forms, such as pure, in simple dilute solution, tinctures, paste, ointment, powder, and plaster.

According to Professor Neisser, the useful properties of tumenol—largely due, it seems, to the sulphonic acid—are as follows:

(1) Moist eczema, when not too violently and recently inflamed, is, on the application of tumenol, rapidly dried up and a hardened layer of epidermis formed over the affected area. This drying action is very serviceable in burns of the first and second degree.

(2) The preparations do not augment or produce irritation or inflammation unless the skin be specially liable to irritation. Save in the most recent stages of eczema, tumenol has an alleviating effect upon inflammation, hyperemia and exudation.

(3) Tumenol has a very marked action in the relief of itching, not only in eczema or in parasitic forms of dermatitis, but also—though less pronounced—in forms of prurigo and pruritis. In the itching of eczema, particularly of recurrent forms with fissures around the anus, scrotum, etc., it proves of excellent service.

(4) Tumenol is useful and often very valuable as a dressing for ulcerations, whether superficial or deep, if they are not too moist or purulent, and there is not too great a loss of tissue.

(5) Tumenol has no general action upon the organism. It was given subcutaneously to animals (dogs and rabbits) for weeks without producing any local disturbances or any appreciable effect upon the general well-being. Human beings also took fairly considerable quantities internally in gelatine capsules without any recognizable disturbance or unpleasant effects.

Tumenol was used in the form of moist compresses (saturated with a 2 to 5 per cent. solution) in acute recurrent eczema of the hands and face or in the acute relapse of chronic eczema of the thighs. The author had previously used aluminum acetate solution (1 to 8 per cent.), but found the tumenol solution superior, since it did not macerate the skin, but converted it into a dry protective covering. At the same time the itching was greatly relieved.

As a paste, tumenol proved very useful in superficial ulcerations (lupus, etc.), in impetigo contagiosa, and in two severe cases of pemphigus. The incipient pustules rapidly dried up and a hard layer was formed over the exfoliated surface; itching was very manifestly alleviated, especially by the tumenol oil paste.

In the dry and squamous forms of eczema the tinctures proved more useful and convenient. They also did good service in multiple erosions due to irritation and scratching.

Moist and vesiculous eczema was painted with simple undiluted tumenol oil, generally with very prompt success.

Ulcerated surfaces were dusted, sometimes with tumenol powder, and sometimes with a mixture of tumenol powder and zinc dusting powder.

To sum up: The experiments hitherto made show the value of tumenol.

(1) As a drying agent which reduces inflammation and effects the covering of the affected area with a horny epidermal layer; this action is specially seen in moist eczema, in erosions, excoriations and superficial ulcerations, and

(2) In all forms of pruritis.

In eczema its best results are produced upon the superficial catarrhal, desquamative forms, both in acute and chronic varieties.

Formula and Modes of Application.—Tumenol can be applied to the skin in the undiluted condition without any ill effects. The sulphone or oil has often a very beneficial effect when applied per se to moist and vesiculous eczema. The powder was also sometimes used alone in the treatment of ulcerated surfaces.

Aqueous solutions of the powder, 2 to 5 per cent., were employed for saturating compresses.

The paste was made of 5 to 10 per cent. strength, the tumenol being added to the zinc paste already prepared, or tumenol powder was substituted for the usual pulverulent ingredients. The consistence of the paste is adjusted according to the kind of case treated.

Professor Neisser says:

The properties of these forms of paste correspond for the most part to those of tumenol itself, and will certainly be the first to commend themselves to the experimenter. Whether the paste was made with tumenol or tumenol powder was not altogether a matter of indifference. Tumenol oil is more bland than tumenol. We convinced ourselves repeatedly of the superiority of tumenol paste over the simple zinc preparation.

The tumenol tinctures were prepared according to the following formula:

℞ Tumenoli.................................... ʒi
Ether sulphur,
Spirit. vini rectific,
Aqua destil. aut glycerini, ana................. . ʒiii

The aqueous preparation, when painted on the skin, dries readily and completely, that containing glycerine leaves behind a somewhat sticky film very suitable for holding a dusting powder.

The ointment used is made as follows:

℞ Tumenoli.................................... ʒi–ʒii
Zinci oxidi,
Bism. subnitr., ana............................ ʒi
Ung. aqua rosa,
Ung. simplic, ana............................. ʒiii
M. f. ung.

Other ointments were prepared with lanolin, lead ointment or other common base.

Society Proceedings.

BALTIMORE MEDICAL AND SURGICAL ASSOCIATION.

A meeting of the Baltimore Medical and Surgical Association was held this evening at the hall of the Medical and Chirurgical Faculty, 847 North Eutaw street.

Dr. E. E. Gibbons (1st vice-president) in the chair.

The first paper was read by Dr. Harlan; subject, "The Ophthalmoscope as an Aid in Clinical Diagnosis."

Dr. Harlan said the use of the ophthalmoscope was not so difficult as many supposed, but a smattering knowledge of it was not of much use. The facilities that physicians in cities have of seeing its employment remove the difficulty of acquiring its use.

The ophthalmoscope will reveal optic neuritis found in lead poisoning, brain tumors and abscesses. Dr. Harlan related a case of a young man who suffered with excruciating pain in the head, not due to error of refraction. Ophthalmoscopic examination revealed a double optic neuritis. The diagnosis was a probable brain tumor, and a subsequent operation that was performed by Dr. Tiffany showed sarcoma of brain.

Tabes dorsalis is sometimes discovered in its incipiency by optic atrophy revealed by the ophthalmoscope. Small retinal hemorrhage is suggestive of rupture of blood vessel further back. Bright's disease is revealed by the ophthalmoscope, as seen in cases of retinitis albuminurica, and it is rare for a patient to live over two years after this has been discovered. This is sometimes the first thing that attracts the patient's attention. Albuminuric retinitis associated with pregnancy has also been discovered by the aid of the ophthalmoscope. If this occurs in the earlier months, abortion should undoubtedly be performed. If in the later months (7th, 8th and 9th) the case may be left to run its course. Such patients are apt to abort in subsequent pregnancies.

Dr. C. Urban Smith asked, Has Dr. Harlan observed retinitis albuminurica in cases of chronic nephritis?

Dr. Harlan replied that it was very seldom seen in chronic cases.

Dr. John D. Blake: I recall some cases that do not bear out Dr. Harlan's advice as to producing abortion. When the trouble comes on between 7th and 9th month, they can be bridged over till delivery.

Dr. D. Z. Dunott related a case of a man who died of apoplexy. An oculist said that for a year he had been expecting that man's death in that way, as his retinal vessels were sclerotic. Has Dr. Harlan observed any characteristic changes in hysterical affections?

Dr. David Streett related several cases illustrating the benefits of ophthalmoscopic examinations.

Dr. James G. Wiltshire: I agree thoroughly with Dr. Harlan. The general practitioner should be acquainted with the use of the ophthalmoscope. Syphilis is sometimes discovered in this way; also often we recognize in this manner diabetes mellitus.

Dr. Harlan: I did not intend to create the impression that all patients did not live over two years with albuminuric retinitis. Some live 4, 5, or 6 years, but the rule is for them to die, and under 2 years. Retinitis albuminurica never causes complete blindness. There is another condition (uremic poisoning) that does cause total blindness, but when patients recover from this they invariably regain their sight.

Dr. David Streett: "The Stethoscope; its Use in Physical Diagnosis." Astonishing how late before the "stethoscope" was developed. Twenty-two hundred years ago Hippocrates spoke of rales in the thoracic cavity. In 1819 the stethoscope was announced to the world. Then it was a solid piece of wood. Later we have improved on this form of physical diagnosis and have the ampliphone and the phonendoscope at our command. The principle involved is the vibration of sound waves. Our present instruments might be improved upon. Water is said to be especially adapted to the transmission of sound waves. Probably this fact could be utilized in the stethoscope. Dr. Streett exhibited an instrument which he devised in which the sound is transmitted through copper wires. The sounds are heard through it with a peculiar metallic thud. Dr. Streett first uses the unaided ear, then when an abnormality is discovered he employs the stethoscope to localize and intensify the diseased sounds. For this purpose the phonendoscope is better than the stethoscope. Physical diagnosis is not so satisfactory below the diaphragm as above it, but even here the stethoscope is of decided service.

Dr. Joseph T. Smith said that one fault with the phonendoscope and ampliphone is that the disk (conducting) is too solid.

Dr. James E. Gibbins: Very true; as Dr. Streett says—the physician can do his best with the instrument with which he is the most familiar.

I can learn more from the single stethoscope than I can from the double. The main idea in the use of the stethoscope is to localize sounds.

Dr. C. Urban Smith: If patient can be kept in upright position, the ear alone will answer, but if the patient is in bed then the stethoscope must be employed.

Dr. Streett: More can be learned from the unaided ear, but better localized through the stethoscope.

Dr. C. Urban Smith moved that the other papers be postponed till next meeting. Carried.

Dr. J. D. Blake moved that at our next meeting we adjourn until next October, and that the subject be finished at next meeting.

Dr. A. J. Sauer offered an amendment that during the summer months we meet once a month in a semi-social capacity. Original motion was carried.

Dr. D. Z. Dunott related case of a man of athletic habits, who 4 years ago had to abandon rowing, etc., because of pain in his back. He married 2 years ago, and six months afterwards pain commenced in one shoulder, extended to the other shoulder and then to all of the joints. Dr. Osler diagnosticated the case as arthritis spondylitis. This man had a peculiar sweating of oil, and had to go to bed, to die, as every one thought. One morning he surprised his wife by walking down stairs. When the case fell into Dr. Dunott's hands he thought the trouble was tuberculosis. He used Sayre's extension upon it and much improvement followed.

Dr. J. D. Blake: What other treatment did you employ?

Dr. Dunott: Syr. ferri iodidi, ol. morrhoæ and albuminous diet. I wish to state that the urine was normal and there was no taint of syphilis in this case.

Dr. J. D. Blake: I would suggest larger doses and would use hydriodic acid. Massage is also beneficial in these cases.

Dr. C. Urban Smith: I think that the trouble is due to pressure of the muscles interfering with innervation, nutrition and drainage of the spine.

Dr. Dunott: There was in this man's lungs an old lesion no longer active, which was of a tuberculous nature.

EUGENE LEE CRUTCHFIELD, M.D.,
Secretary;
ANDREW J. SAUER, M.D.,
Stenographer.

GAILLARD'S MEDICAL JOURNAL.

A MONTHLY JOURNAL OF MEDICINE AND SURGERY

Scientia et Veritas Sine Timore.

PUBLISHED BY THE NEW YORK MEDICAL PUBLISHING CO.,
220 Broadway, NEW YORK.

All communications, of either business or editorial character, should be addressed to Gaillard's Medical Journal, 220 Broadway, New York.

Articles for publication will be received with the understanding that they are contributed exclusively to this journal. Reprints will be furnished at actual cost, orders for which should accompany the manuscript. Authors of accepted articles may receive twelve copies of the issue in which they are published. Necessary illustrations will be furnished without expense to authors when suitable drawings or photographs are furnished.

EDITORIAL.

It is again our privilege to comment upon the annual meeting of the American Medical Association. The meetings of this association are always of the greatest importance and should be of interest to every practicing physician in the United States. The proceedings which have just been concluded in St. Paul were of exceptional value and interest. The scientific program, so far as we can judge from the oral reading of the papers, was of the greatest scientific value. The total registration was approximately 1,800, the sections being largely and enthusiastically attended. The most radical proceeding of the association was its success in formulating a plan of reorganization, and the committee in charge of this most delicate matter are certainly to be congratulated upon the work they have accomplished. Reorganization at this time was absolutely necessary for the continued successful career of the association. In its old formation it was a difficult body to control, necessarily unresponsive to rapid progress. This, among other reasons, make it absolutely impossible for it to take its true position as a national and representative organization.

The business of the association is now to be carried on by a body styled "The House of Delegates," consisting of representatives of the various state societies and elected by them. It will be appreciated that in this manner a more complete representation of the entire profession is obtained and there is no doubt but that the scope, usefulness and value of the "A. M. A." will be largely increased, and its meetings more generally enjoyed and more largely attended.

There was some little complaint relative to accommodations, but this can hardly be avoided when the meetings are held in the smaller cities. The next meeting will be held at Saratoga, where the accommodations will be first-class. St. Paul, the city of hospitality, distinguished itself for its courtesy to the strangers within its gates.

American Association of Life Insurance Examining Surgeons.

On the 3d of June there was held at St. Paul, in the rooms of the Masonic Hall, the second annual meeting of the American Association of Life Insurance Examining Surgeons (T. A. Stevens, M.D., Canny, Kan., secretary). There were gathered at this meeting men of national reputation as practicing physicians and surgeons and as medical examiners. The meeting was one of the greatest of enthusiasm, with a strong undercurrent of determination to make this second meeting a foundation from which to build a great, powerful and representative association of medical men, with the object of more truly taking care of the vast interests placed in the hands of the medical examiner. There can be no question as to the value of such an organization to the medical directorate of the insurance companies, nor can there be any question as to the value of scientific co-operation to the members of this organization. The interchange of views, the study and untangling of the knotted problems with which they are confronted in their effort to give true and accurate information, and the greater distribution of knowledge of that absolutely scientific branch of medicine, physical diagnosis. All members who are interested in these lines of work should become members of this new organization. There are over 40,000 practicing physicians who do medical examining, and it can readily be appreciated that the field from which a membership may be built is tremendous.

The following papers were read and discussed and, together with a verbatim report of the proceedings, will be published in the *Medical Examiner and Practitioner*, New York, the official organ of the association:

"Diabetes Mellitus and its Relation to Life Insurance," Dr. James H. Reed, Battle Creek, Mich.; "Arterio-Sclerosis, the Greatest Foe of Life Insurance Companies," Dr. Talbot Jones, St. Paul, Minn.; a paper, Dr. Charles L. Green, St. Paul, Minn.; "Surgical Appendicitis, as Related to Life Insurance," Dr. Hal C. Wyman, Detroit, Mich.; "The Environments of the Applicant," Dr. William W. Pennell, Fredericktown, Ohio; "The Surgical Side of Life Insurance Examinations," Dr. Manning Simons, Charleston, S. C.; "Remarks on the Relation of the Medical Examiner to Life Insurance Companies," Dr. C. C. Hunt, Dixon, Ill.; "The Relation Between the Company and the Examiner," Dr. J. C. Pannenborg, Hammond, Ind.; "Is a Closer Relation Between the Local Examiners and the Medical Directors Desirable?" Dr. J. W. Truworthy, Los Angeles, Cal.; address, Dr. J. H. Stowell, Chicago, Ill.

Wage War On the Mosquito in Louisiana.

Professor George E. Beyer, of Tulane University, seems keenly alive to the danger from mosquito-borne infection and is making a laudable effort to awaken the citizens of Louisiana to a realization of this danger. In conjunction with Dr. Veazie he has been making a special study of the mosquitoes of Louisiana and finds that there are nine different species in that State, of which at least two, and probably more, belong to the genus anopheles, and are therefore capable of transmitting malarial germs.

In a lecture recently delivered at New Orleans, Professor Beyer urged that a vigorous war of extermination be undertaken against the mosquito throughout Southern Louisiana, and it is to be hoped that he will be able to so arouse public sentiment as to bring about such a crusade on the part of the public as he advocates. Leaving aside entirely the question of yellow-fever infection through the agency of the mosquito, the mosquito causes vast losses to the community by its activity as a carrier of malarial germs for, but for the prevalence of malarial diseases the gulf coast generally would have been much more attractive to immigrants and its wonderfully rich resources would have been developed to a far greater extent than they have been. We referred in our last issue to the mosquito as a bearer of yellow-fever infection and it surely requires no special pleading to convince everyone of the great need which exists for the inauguration of a war of extermination on these little pests. Physicians can do much to shape public opinion and to arouse public sentiment on this head, and it is the duty of every physician—and more particularly of all residing in the South—to vigorously second the efforts of Professor Beyer.

The Verge of Insanity.

In the vast volume of newspaper comment educed by the Bellevue Hospital investigations the lack of confidence of the laity in the expert alienist was very plainly evident. Nor is this indisposition to accept implicitly the dictum of the alienist difficult to understand when the fact is taken into consideration that so many of his patients are in that vague borderland between mere eccentricity, on the one hand, and absolute insanity, on the other. Indeed, there are times when the alienist himself cannot be sure as to whether the patient has passed into the realm of the unreal. There are many who dwell in this borderland for life, others, under proper care and intelligent treatment, return safely to the full control of their mental faculties, and far too many pass out of the twilight of the borderland into the utter blackness, total insanity, sometimes because of some incurable and progressive malady, but more often because of a lack of intelligent and efficient medical supervision of the patient.

In commenting on the varied and interesting aspects of this borderland between sanity and madness, Dr. H. W. Coe, in a recent issue of the *Medical Record*, urges the family physician to exercise the greatest possible care in diagnosing mental disorders even of an apparently trivial character. He is not an alarmist, and, in fact, cautions the general practitioner against a too facile conclusion that every case of mental disorder he meets with is due to incipient paresis and the patient doomed to certain madness, for some cases presenting many of the symptoms characteristc of general paresis turn out to be curable under proper surroundings and treatment.

The family practitioner sometimes falls into a rut. He knows, or thinks he knows, his patient so well that he fails to make a thorough examination each time that he is called upon, and thus may fail to note some wholly new condition in a patient which gives rise to a symptom which he has previously observed in the patient and has always been attributed to some well-defined cause other than that now producing the effect. The fact, that a patient has had epileptic convulsions ten times is too easily accepted as proof that the eleventh attack of convulsions is of epileptic origin, whereas a physician on his guard might have found that the eleventh attack was of uremic origin.

The patient who has strayed into this borderland of insanity may frequently be recalled to the solid ground of saneness by a proper course of treatment, particularly where this is undertaken in time. Indeed, time is a most vital factor, and for this reason the general practitioner needs to be especially alert, for when the mental disease has progressed so far as to plainly call for the intervention of the alienist, the probabilities are that the period of greatest promise for recovery in which the best results are to be anticipated will have passed. It therefore behooves the general practitioner to make a careful study of every case showing any tendency toward a disturbance of mental equilibrium, for in probably no class of cases is early treatment so important.

TABLE OF CONTENTS.

Observations Upon the Symptoms and Treatment of Hyperacidity of the Stomach. By Henry F. Hewes, M.D. 1

The Diagnosis of Ectopic Pregnancy Before Rupture, Based on Eleven Cases. By J. F. Baldwin, A.M., M.D. 7

Early Diagnosis of Mammary Tumors. By George F. Shrady, M.D. 13

The Treatment of Enteritis With Xeroform 20

Forms of Tremor, and their Clinical Characters 22

Hypodermic Injections of Iodide of Sodium in Rheumatism. 22

Incompatibilities of Heroin and Heroin Hydrochloride..................... 23

Continued on page 9.

℞—One teaspoonful of CELERINA four times a day for vocal, mental and physical fatigue. One teaspoonful of CELERINA taken just before singing or speaking strengthens the voice.

RIO CHEMICAL CO., St. Louis, Mo., U. S. A.

Guaiacol Carbonate

(Duotal.)

Creosote Carbonate

(Creosotal.)

These two Carbonates are now acknowledged to be the most pleasant, safe and effective remedies in the treatment of tuberculosis. An experience of over five years has established the fact that Creosote Carbonate and Guaiacol Carbonate are free from the noxious by-effects of the plain creosote and guaiacol, and exhibit only the therapeutic properties of these drugs. The neutral Carbonates cause neither irritation nor inflammation of the stomach or intestines, and abnormal fermentation and decomposition processes are stopped. No other guaiacol compound contains so high a percentage of chemically pure crystalline guaiacol as Duotal, namely: over 90%; while Creosotal contains 92% of pure creosote. The Carbonates are the only two intestinal antiseptics whose action extend as far as the ileum; but, as has been shown by thorough investigation, they cannot be found at the commencement of the large intestine when administered in ordinary doses.

Professor Dujardin-Beaumetz, in the Supplement to the Dictionary of Therapeutics, Paris, 1895, states:

> "From numerous observations, published both in France and abroad, it "appears that Carbonate of Guaiacol stimulates the appetite, facilitates "assimilation, invariably produces a considerable increase in weight, and "imparts to the system great resisting power. Its antiseptic action will "arrest the development of any microbes in the intestine and obviate the "generation of gases, which is always unpleasant. Fits of coughing will "decrease, the expectoration will be modified, fever as well as perspiration "at night will gradually disappear, and the patient will thus enjoy refreshing sleep."

Dr. Nied, Physician-in-Chief at St. Elizabeth's Hospital in Vienna, has treated last winter a number of female patients who were suffering from acute bronchitis, complicated in some cases by influenza, with Guaiacol Carbonate in doses of from 7½ grains to 22½ grains, twice daily, with excellent results. (*Allgemeine Wiener Medicinische Zeitung*, June, 1897).

Dr. Eschle in Professor Baumann's physiologico-chemical laboratory in the Medical Department of the University of Freiburg, found that Guaiacol Carbonate is the more thoroughly used up the smaller and more frequent the doses in which it is given. In phthisis, therefore, Eschle recommends the administration of a dose of 4½ to 7½ grains of Guaiacol Carbonate four times daily. (*Zeitschrift für Klinische Medizin*, Volume 29, 3 and 4).

Dr. Jacob, Chief at the University Medical Clinic of Professor Leyden in Berlin, has obtained very satisfactory effects from the use of Creosotal in a number of cases of pronounced phthisis, though comparatively small doses have been employed. Each patient began with 5 drops three times daily, increasing the dose three drops every day, until 25 drops were taken at a dose. At this they were kept for from one to four weeks, when the dose was diminished in a similar ratio, until only 10 drops were taken thrice daily; and then the ascending scale was begun again. (Inaugural Dissertation by Hans Nordt, University of Berlin, February, 1897.)

VON HEYDEN'S

ANTISEPTIC CREDÉ (Citrate of Silver, Heyden)
CREDÉ'S LACTATE OF SILVER
APOLYSIN
GUAIACOL CHEMICALLY PURE CRYSTALS
GUAIACOL PURE, LIQUID
GUAIACOL-SALOL
OLEO-CREOSOTE

OLEO-GUAIACOL
ORPHOL (Betanaphtol-Bismuth)
PHENOL-BISMUTH
XEROFORM (Tribromphenol-Bismuth)
ORTHO-CHLORPHENOL
PARA-CHLORPHENOL
PARA-CHLORSALOL

SCHERING & GLATZ, 55 Maiden Lane, New York,
Literature furnished on application. **Sole Agents for the United States and Canada.**

CONTENTS (Continued from Page 7).

Contraindications of Digitalis......... 23

Suprarenal Extract in the Treatment of Rickets......................... 24

Some Statements Concerning Calomel 24

Auto Toxide Used in Typhoid Fever.. 25

Treatment of Asthma and Hay Fever. By Ernest Kingscote, M.B., C.M. ... 25

Notes on the Enemata Employed After Abdominal Section 26

The Treatment of Influenza. By W. H. Thomson, M.D., LL.D... 27

EDITORIAL.......................... 33

The Asheville Meeting 36

LAXATIVE ANTIKAMNIA & QUININE TABLETS
L.A.K.Q.
L.A.K.Q.
A.K.
1 M. CORYZA
LA GRIPPE 2 M.
SEND US YOUR CARD AND WATCH THE EFFECT.
A.K.C.
A.K.C.
ANTIKAMNIA & CODEINE TABLETS
THE ANTIKAMNIA CHEMICAL COMPANY, ST. LOUIS, U.S.A.

The Standard Medicine of the World.

HAYDEN'S VIBURNUM COMPOUND.

The Great

ANTISPASMODIC

Of the Profession.

Employed by all Obstetricians. A reliable remedy in DYSMENORRHŒA, NERVOUS DISORDERS, and as a UTERINE TONIC, giving tone and strength to the system. Free from all Narcotics. For new booklet, address

New York Pharmaceutical Company,

BEDFORD SPRINGS, MASSACHUSETTS.

"THE PATIENT'S GIBRALTAR"

is the manner in which a physician refers to

Liquid Peptonoids

in connection with its use in pneumonia, infectious fevers generally and whenever an aseptic fluid nutrient is indicated. Palatable, promptly absorbable and nutritious. A very present help in time of Typhoid.

Dose—1 to 2 tablespoonfuls,
3 to 6 times a day.

When food and antiseptic are both required, prescribe LIQUID PEPTONOIDS with CREOSOTE

The Arlington Chem. Co.,
Yonkers, N.Y.

TABLE OF CONTENTS.

Every-Day Headaches. By Hugh T. Patrick, M.D. 37

Clinical and Experimental Use of Orthoform. By Dr. August Luxenburger 44

The Treatment of Dupuytren's Contraction and Other Points in the Surgery of the Hand. By A. H. Tubby, M.S. Lond., F. R. C. S. Eng. 55

The Mutual Influences of Pregnancy and the Infectious and Constitutional Diseases. By Robert B. Preble, M.D 60

Continued on page 9.

Prevent Accidents.

Very many physicians make it a routine rule to administer ALETRIS CORDIAL in teaspoonful doses four times a day to all of their pregnant patients for several weeks during the latter part of gestation. Experience has taught them that ALETRIS CORDIAL not only prevents miscarriage, but also facilitates parturition.

A sample bottle will be sent FREE to any physician who desires to test it, if he will pay the express charges.

RIO CHEMICAL COMPANY, St. Louis, Mo., U. S. A.

Formalin Lamp

Schering's Formalin Disinfectant and Deodorizing Lamp.

A most energetic disinfector and destroyer of foul and decomposing odors.
An absolutely reliable agent for air purification and sterilization.
Far more efficacious and pleasant than sulphur, carbolic acid, cresolene, etc.
The most efficient destroyer of the disease-producing micro-organisms.
Invaluable in the treatment and prevention of tuberculosis, diphtheria, scarlet fever, measles, whooping-cough, catarrh, influenza, etc.
Does not injure furniture, fabrics, or material of any kind.

When the vapors of Formalin are employed in the treatment of zymotic diseases, or for ordinary air purification and sterilization, one pastil should be constantly evaporated in the upper cup of the lamp. When rapid vaporization is required the upper cup should be removed and the pastils placed directly in the lower receptacle.

Formalin Disinfector

Schering's Formalin Disinfector.

The ideal appliance for the reliable disinfection of large rooms and entire buildings; from 200 to 250 Formalin pastils of 1 gramme each (100% pure formaldehyde) can be vaporized in one disinfector at a time. Approved and recommended by the highest foreign and American authorities and adopted by many Boards of Health and School authorities.

Beta-Eucaine (Eucaine Hydrochlorate "B")

Eucaine "B" has been extensively used in all branches of surgery, dentistry, ophthalmology, etc. Favorable reports concerning it have come from a host of practitioners on both sides of the Atlantic.

In a report made at the Academy of Medicine, Paris, March 29, 1898, published in *The Bulletin Médical* of March 30, 1898, **Prof. Reclus** stated: "**Eucaine 'B'** possesses a number of undubitable advantages. In the first place, **its solution can be boiled without undergoing decomposition, thus permitting it to be sterilized by heat.** This cannot be done with cocaine. In the second place solutions of **Eucaine 'B' are stable and this is the case, to such an extent, that he has been able, in conjunction with Dr. Legrand, to perform a number of long and delicate operations with solutions that were more than four months old.** This is far from being possible with cocaine solutions, as they change at the end of four or five days. Finally, and this is really the most important point, **Eucaine 'B' is 3¾ times less toxic than cocaine.**"

Glutol-Schleich

or Formalin gelatin, is an odorless, non-irritant and non-poisonous antiseptic powder, forming a hard scab in a few hours in contact with a clean wound, and of pre-eminent value in its treatment, since it renders other disinfectant measures unnecessary. Formalin is set free from the compound by the action of the tissue cells; a continuous stream penetrates every corner and crevice of the wound, and effects molecular antisepsis. Acute purulent processes are cut short, and lesions can be relied upon to run an aseptic course.

Urotropin.

A most efficient diuretic, urinary antiseptic, uric acid solvent, and remedy for calculous disease. Rapidly renders alkaline and putrid urine containing mucous, pus, uric acid, and amorphous urates normal in appearance and reaction. It sterilizes the urine, increases its quantity, and dissolves calculi and deposits. Very valuable in all suppurative diseases of the genito-urinary tract, pyelitis, cystitis with ammoniacal decomposition of the urine, phosphaturia, and also in gouty and rheumatic affections where active elimination of uric acid and the urates is required. Dose, 3 to 7½ grains two to three times a day, best administered in half a pint of simple or carbonated water.

SCHERING & GLATZ, 58 Maiden Lane, New York,
Sole Agents for the United States.

Literature furnished on application.

CONTENTS (Continued from Page 7).

The Value of the X-Rays 63

The Treatment of Acute Colds. By W. Blair Stewart, A.M., M.D....... 64

The Bacteriology of Acute Articular Rheumatism...................... 67

Cure of Chronic Leg Ulcers.......... 68

EDITORIAL. 69

IN COLDS, COUGHS, CORYZA,
LA GRIPPE AND ALLIED COMPLAINTS.
ANTIKAMNIA & CODEINE TABLETS
LAXATIVE ANTIKAMNIA & QUININE TABLETS
AK
AK
LAKQ
LAKQ
AK
SEND YOUR PROFESSIONAL CARD FOR FREE SAMPLES
THE ANTIKAMNIA CHEMICAL COMPANY, ST. LOUIS, U.S.A.

THE TWO GREAT REMEDIES OF THE AGE

Hayden's Viburnum Compound
and Hayden's Uric Solvent

"H. V. C." the standard **ANTISPASMODIC, NERVINE,** and **UTERINE TONIC.**

Used and recommended by the majority of the Medical Profession of the United States.

The **URIC SOLVENT OF DR. HAYDEN** has been most successfully employed in all diseases of the **KIDNEYS, RHEUMATISM, NEURALGIA, GOUT,** etc., as it removes the cause of the complaints by eliminating the **URIC ACID** from the system. Send for booklets.

New York Pharmaceutical Co.
SOLE PROPRIETORS
BEDFORD SPRINGS, MASS.

ESKAY'S Albumenized FOOD

CONTAINS

EGG-ALBUMEN

COMBINED WITH

Sugar of Milk

AND

Cereals

Deliciousness of flavor, and palatability are characteristics of

ESKAY'S Albumenized FOOD

Its continued use does not pall on the taste. Hence its value, aside from its nourishing properties, in all acute diseases.

ESKAY'S Albumenized FOOD

is easily digested and assimilated by the weakest stomach.

Send for free samples and clinical reports to
SMITH, KLINE & FRENCH CO., Manufacturers,
Philadelphia, Pa.

TABLE OF CONTENTS.

To Cut or Crush In Stone of the Urinary Bladder? By Stuart McGuire, M.D. 73

Pharyngeal Adenoids, Their Frequency and Sequelæ. By Philip D. Kerrison, M.D. 78

Concerning the Etiology of Asthma. By John Dunn, M.D. 83

Restriction and Prevention of Scarlet Fever—Sometimes Called "Scarlatina," "Scarlet Rash," "Canker Rash," or "Rash Fever" 87

The Treatment of Influenza 89

Brief Considerations on the Etiology of Malignant Growths. By R. H. Cowan, M.D. 92

Nitric Acid for Gonorrhea 94

A Case of Chronic Rheumatism. By L. B. Smith, M.D. 95

Mercury-ethylenediamine, 10 per cent. Solution. Schering 96

Ethylenediamine, 10 per cent. Solution. Schering 96

Continued on page 9.

Dysmenorrhea.

The experience of the profession demonstrates that ALETRIS CORDIAL (Rio) given in teaspoonful doses, three times a day, not only relieves dysmenorrhea, but, taken continuously, usually effects a permanent cure.

Being strictly a uterine tonic, it has a direct affinity for the reproductive organs, and exercises a healthy tonicity over their functional activity.

RIO CHEMICAL CO., St. Louis, Mo., U. S. A.

DUOTAL (Guaiacol Carbonate-Von Heyden)

AND CREOSOTAL

(Creosote Carbonate=Von Heyden)

are the most eligible and effective of germicides, and the most vigorous neutralizers of microbic poisons in the intestinal tract. The remarkable results obtained in tuberculosis, typhoid fever, rheumatoid arthritis, etc., are explainable by the great powers of elimination of toxalbumins that these remedies have been proven to possess. They are themselves neutral, non-toxic, and absolutely free from all caustic and irritant qualities.

At the Clinic of **Professor E. VON LEYDEN,** at Berlin, Creosotal has been used in a large number of cases of **phthisis pulmonum** with very good results. It agreed well with all the patients. It had a very favorable effect upon the night sweats and the fevers; and the cough and expectoration either disappeared entirely, or were markedly improved. The body weight increased in most cases.

Dr. PAUL JACOB, Physician-in-Chief of Professor Von Leyden's Clinic, whose report is published in full in the Charité Annalen, Berlin, 1897, claims **that Creosotal has a specific action in phthisis, and that every case that is not too far advanced can be greatly benefited by its use.**

ORPHOL (Betanaphtol=Bismuth=Von Heyden)

The employment of Orphol, which is a neutral, odorless, tasteless and non-toxic powder, is indicated in all fermentative gastro-intestinal processes, in ptomaine poisonings, gastro-enteric catarrhs, typhoid fever, etc. **Practical Intestinal Antisepsis** can be effected and maintained by its use. Unlike opium, tannin, etc., Orphol in no way interferes with the digestion, so that patients suffering from dyspepsia bear it well.

Betanaphtol-Bismuth is antiseptic as well as astringent, and is therefore far superior to the new tannin compounds recently introduced; for tannin is well known not to possess any bactericide action at all. Four or five 15-grain doses of Orphol will usually cure the very worst cases of diarrhœa; and in cholera infantum 2 to 5 grains administered every three or four hours act admirably.

Orphol is soothing to the irritated and inflamed intestinal mucous membrane, besides acting as a continuous disinfectant. It does away with the dangers of caustic or poisonous antiseptic substances, such as carbolic acid, naphtol, resorcin, the bichloride of mercury, etc , and the use of complicated and uncertain diarrhœa and cholera mixtures.

XEROFORM (Tribromphenol-Bismuth=Von Heyden)

Xeroform is the ideal substitute for iodoform, being an antiseptic, desiccating and deodorizing agent which is odorless, non-poisonous and non-irritating, with very powerful antibacterial properties. Professors Hueppe and Fasano, Dr Reynders, and others have found it to be a very effectual intestinal antiseptic in cholera, intestinal tuberculosis, etc.; but its chief application is as an external antiseptic in the place of iodoform. Xeroform has been employed by Drs. Heuss, Cumston, Grünfeld, Beyer, Metall, Paschkis, and many other observers, in the most varied surgical affections; for operative procedures, amputations, enucleations, and cancer operations; for suppurative bursitis, lymphadenitis, and alveolar periostitis; for paronychias, deep abscesses, and suppurating buboes. In venereal diseases it has been extensively employed in the treatment of chancroid; and in dermatology for impetigo, furunculosis, sycosis, eczema and pruritus. It has also been successfully used in ophthalmic and gynæcological practice, and for insufflation into the nose and ear. Its fine pulverization enables the physician to cover a large surface with a very small quantity of the drug.

Literature furnished on application.

SCHERING & GLATZ, 58 Maiden Lane, New York,
Sole Agents for the United States.

CONTENTS (Continued from Page 7).

Some Suggestions on the Manner of Using Protargol.................. 97

Early Symptoms of Tuberculosis..... 98

The Role of Petroleum in Therapeutics, and Why it is Prescribed... 98

Therapeutic Hints.................. 100

The Treatment of Eczema.......... 102

Treatment of Broncho-Pneumonia of Childhood........................ 103

BOOK REVIEWS...................... 104
Obstetric and Gynecologic Nursing. By E. P. Davis, A.M., M.D.—The American Year-Book of Medicine and Surgery for 1901. By Eminent American Specialists.

EDITORIAL......................... 105

LAXATIVE ANTIKAMNIA & QUININE TABLETS
L.A.K.Q.
L.A.K.Q.
A.K.
1 M. CORYZA
LA GRIPPE 2 M.
SEND US YOUR CARD AND WATCH THE EFFECT.
A.K.&C.
A.K.&C.
ANTIKAMNIA & CODEINE TABLETS
THE ANTIKAMNIA CHEMICAL COMPANY, ST. LOUIS. U.S.A.

THE TWO GREAT REMEDIES OF THE AGE

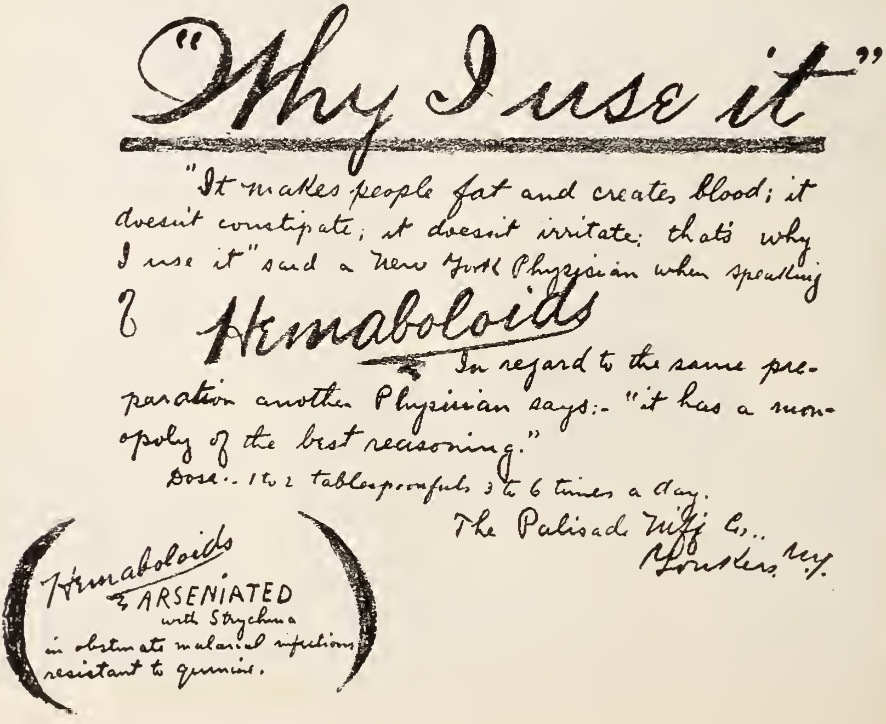
Hayden's Viburnum Compound
and Hayden's Uric Solvent

"H. V. C." the standard **ANTISPASMODIC, NERVINE,** and **UTERINE TONIC.**

Used and recommended by the majority of the Medical Profession of the United States.

The **URIC SOLVENT OF DR. HAYDEN** has been most successfully employed in all diseases of the **KIDNEYS, RHEUMATISM, NEURALGIA, GOUT,** etc., as it removes the cause of the complaints by eliminating the **URIC ACID** from the system. Send for booklets.

New York Pharmaceutical Co.
SOLE PROPRIETORS
BEDFORD SPRINGS, MASS.



"Why I use it"

"It makes people fat and creates blood; it doesn't constipate; it doesn't irritate; that's why I use it" said a New York Physician when speaking of

Hemaboloids

In regard to the same preparation another Physician says:- "it has a monopoly of the best reasoning."

Dose.- 1 to 2 tablespoonfuls 3 to 6 times a day.

The Palisade Mfg Co.,
Yonkers, N.Y.

Hemaboloids
ARSENIATED
with Strychnia
in obstinate malarial infections
resistant to quinine.

TABLE OF CONTENTS.

Non-Surgical Treatment of Fibroid Tumors of the Uterus. By Augustin H. Goelet, M.D., ... 109

Enlargement of the Spleen in Children. By Samuel West, M.D............... 114

The Treatment of Summer Diarrhea of Infants. By M. Loewenthal, M.D. 117

Creosote in Pneumonia: A Résumé. By I. L. Van Zandt, M.D............ 123

Eczema of Female Genitals............ 126

Emergency Hospital at the Pan-American.............................. 127

The Malarial Mosquito on the Susquehanna. By Harvey A. Bashore, M.D. 129

Removal of Foreign Bodies from the Auditory Canal. By G. C. Savage, M.D.................................. 130

Atrophy of the Muscles of the Shoulder as an Early Sign of Phthisis......... 132

Castor Oil in Neuralgia............... 133

Administration of Quinin to Children.. 134

Vomiting After Chloroform and Other Anesthetics, with a Suggestion for Its Prevention......... 134

Continued on page 9.

EVERY MEDICAL MAN who has any experience in GYNECOLOGY will, we venture to say, admit that he meets very few women who have not some trouble with their menstrual functions, whether it be Amenorrhea, Menorrhagia, Metrorrhagia, Dysmenorrhea or some other irregularity. If he believes in the old adage that "experience is the best teacher," he will send and get a pamphlet containing the opinions of the leading medical men of the world as to the value of ALETRIS CORDIAL in these disorders.

A sample bottle will be sent free to any physician who desires to test it, if he will pay the express charges.

RIO CHEMICAL CO., St. Louis, Mo., U. S. A.

Argentamine

Has the most vigorous penetrative properties and the greatest antibacterial power of all the newer silver preparations.

Beta-Eucain

A safe and non-irritating local anæsthetic, four times less toxic than cocain, and sterilizable by boiling without decomposition.

UROTROPIN

Urotropin is the best and most efficient of all urinary antiseptics, sterilizing the urine, increasing diuresis, and dissolving calculi and deposits. By its use alkaline and putrid urines, containing micro-organisms, blood, mucus, pus, uric acid, and urates, are rendered normal in appearance and reaction. It limits suppuration and exercises a healing effect upon the inflamed mucosa of the urinary passages. It is the most reliable sterilizer of the urines of typhoid fever patients, acting also as a prophylactic. It is extremely valuable in calculous disease, acute and chronic urethritis and gonorrhœa, bacteriuria, prostatitis, acute and chronic gonorrhœal cystitis, vesical inflammation of the ammoniacal or acid varieties, pyelitis, pyelo-nephritis, phosphaturia, nocturnal enuresis, and for the irritable bladder of diabetes. It is a powerful antidote to the urinary poisoning that so frequently occurs in suppurative diseases of the genito-urinary organs. In renal colic the attacks are cut short, the after-pains are lessened or abolished, and recurrence is postponed. It has been used to great advantage in all the affections marked by deficient elimination of uric acid and the urates, such as gout and rheumatism; and it is indicated preparatory to and after all instrumentation or operative procedure upon the genito-urinary tract, to sterilize the urine and prevent infection.

Extremely favorable reports of its efficiency have been published by **Professors Nicolaier, Heubner, Casper, Belfield, Wilcox, McGee, Horwitz** and **Elliott, Drs. Brewer, Cohn, Flexner, Richardson, Ehrmann, Howland, Thompson, Dalton, Boeckmann, Cammidge,** and many others.

DOSE.—For adults, 7½ grains two or three times daily, best administered in half a pint of plain or carbonated water. Much larger amounts can be given when indicated, however, up to 60 grains or more daily.

Urotropin, prepared by **Chemische Fabrik auf Actien, formerly E. Schering,** of Berlin, Germany, is supplied in half ounce and one ounce vials and in the form of half gram tablets (7½ grains each), in paper boxes of twenty tablets.

Literature furnished on application.

SCHERING & GLATZ, 58 Maiden Lane, New York,
Sole Agents for the United States.

Glutol-Schleich

An odorless, non-irritant and non-poisonous antiseptic powder for the treatment of wounds; the best dry dressing for burns.

Schering's Glycero-Phosphates

guaranteed to be true glycero-phosphates, and not simple phosphates. Tonics and Stimulants to the nervous structures.

CONTENTS (Continued from Page 7).

Frontal Headache and Iodide of Potash 135

Acetic Acid as an Antiseptic 135

Value of Quinine in Labor 135

A Note on the Value of Inoculation Against Enteric Fever.............. 136

The Prognosis of Various Types of Albuminuria........................ 136

Paralysis in Typhoid Fever.... 137

The Relation of Appendicitis to Diseases of the Uterine Appendages. By Albert L. Beahan............... 138

The Diagnosis of Carcinoma of the Stomach.......................... 139

Herpes Genitalis 140

Editorials.......................... 142
The Christian Science Fad—The Cancer Germ—Havana Free From Yellow Fever.

IN COLDS, COUGHS, CORYZA, LA GRIPPE AND ALLIED COMPLAINTS.
ANTIKAMNIA & CODEINE TABLETS
LAXATIVE ANTIKAMNIA & QUININE TABLETS
A.K.
SEND YOUR PROFESSIONAL CARD FOR ·FREE·SAMPLES·
THE ANTIKAMNIA CHEMICAL COMPANY, ST. LOUIS, U.S.A.

THE TWO GREAT REMEDIES OF THE AGE

Hayden's Viburnum Compound and Hayden's Uric Solvent

"H. V. C." the standard **ANTISPASMODIC, NERVINE,** and **UTERINE TONIC.**

Used and recommended by the majority of the Medical Profession of the United States.

The **URIC SOLVENT OF DR. HAYDEN** has been most successfully employed in all diseases of the **KIDNEYS, RHEUMATISM, NEURALGIA, GOUT,** etc., as it removes the cause of the complaints by eliminating the **URIC ACID** from the system. Send for booklets.

New York Pharmaceutical Co.
SOLE PROPRIETORS
BEDFORD SPRINGS, MASS.

PRACTICAL RESULTS

In Infant and Invalid Feeding

"I have prescribed and used your

ESKAY'S Albumenized FOOD

for several years, with very great success. Many of my old patients would not be without it. I find it equally valuable in infants and invalids in advanced years. I use a cupful of it at times myself, when I feel exhausted from overwork." Dr. - - - - - , Philadelphia.

Samples and Clinical Reports Furnished Upon Application

SMITH, KLINE & FRENCH CO., Manufacturers, Philadelphia, Pa.

TABLE OF CONTENTS.

Uterine Fibroids. By Homer Page, A.M., M.D. 145

The Causes of Failure of Compensation in Diseases of the Heart. By Morris Manges, A.M., M.D. 152

Can Tuberculosis Be Exterminated? By Herbert C. Clapp, M.D. 159

Hemorrhage Malarial Fever: Its Treatment. By W. E. Sparkman, M.D. 162

Enlarged Prostate, Cystitis, Wound of the Urethra and Abscess of the Testicle. By L. H. Schwerin, M.D. 164

Some Clinical Aspects of Chronic Nephritis 167

Notes on the Hitherto Unnoticed Condition of the Omentum in Cancer of the Ovaries. By A. Lapthorn Smith, B.A., M.D., M.R.C.S., London 168

Meeting of the Baltimore Medical and Surgical Association................ 170

Continued on page 9.

℞—One teaspoonful of CELERINA four times a day for vocal, mental and physical fatigue. One teaspoonful of CELERINA taken just before singing or speaking strengthens the voice.

RIO CHEMICAL CO., St. Louis, Mo., U. S. A.

Orphol (Betanaphtol=Bismuth=Von Heyden)

A MOST RELIABLE AND EFFICIENT ANTISEPTIC AND ASTRINGENT FOR THE GASTRO-INTESTINAL TRACT.

Orphol is a neutral, non-caustic and non-poisonous chemical compound composed of 80% of bismuth oxide and 20% of betanaphtol. It is a fawn-colored powder of faintly aromatic taste and odor, and insoluble in water. Experiments made in **Professor Nencki's** laboratory at the Imperial Institute for Experimental Medicine at St. Petersburg show that its decomposition begins in the stomach and is completed in the small intestine.

Orphol sooths the irritated and inflamed intestinal mucosa, acting, from its slow decomposition, as a continuous and harmless disinfectant. It directly destroys the disease germs and neutralizes their poisons; and after absorption fixes the toxic albumins and favors their elimination. It is free from the dangers of carbolic acid, naphtol, sublimate, etc., and its use obviates the necessity of employing complicated and uncertain diarrhœa and cholera mixtures.

A practical intestinal antisepsis can be effected and maintained with Orphol, and it is indicated in all catarrhal and fermentative gastro-intestinal processes, ptomaine poisoning, gastritis, summer diarrhœa, dysentery, typhoid fever, etc. It agrees with the most delicate stomach, and children take it without difficulty.

Orphol has been extensively and most successfully employed during the past six years. Reprints and abstracts of papers by **Drs. R. W. Wilcox** and **Louis Fischer** of New York; **D. D. Stewart** and **Hugo Engel** of Philadelphia; **E. Chaumier** of Tours, and others, will be mailed upon request.

DOSAGE.

For Adults: 25 to 75 grains, or 5 to 15 tablets, daily in divided doses.
For Children: 3 to 5 grains, or ½ to 1 tablet, every three or four hours on an empty stomach.
Orphol in powder form is supplied in 1-oz. vials only.
Orphol in 5-grain tablets is supplied only in flat, oval vials, containing 50 tablets.

CAUTION TO PHYSICIANS.

Complaints having reached us from physicians that certain mixtures and tablets purporting to contain bismuth betanaphtolate have had a caustic and burning taste, we have found upon analysis that they contain the ordinary irritant naphtol, and not the neutral, tasteless and insoluble chemical compound of Von Heyden. To preclude all possibility of error we would request the profession to prescribe **Von Heyden's Betanaphtol=Bismuth** under the more distinctive name of "**Orphol**".

SCHERING & GLATZ, 58 Maiden Lane, New York,
Literature furnished on application. Sole Agents for the United States.

CREOSOTAL

CREOSOTE CARBONATE—
Von Heyden.

DUOTAL

GUAIACOL CARBONATE—
Von Heyden.

ANTISEPTIC CREDÉ

CITRATE OF SILVER—
Von Heyden.
CHEMICALLY PURE
POWDER AND TABLETS.

CREDÉ'S LACTATE OF SILVER

CHEMICALLY PURE
POWDER AND TABLETS.

COLLARGOLUM

SOLUBLE METALLIC SILVER
—Credé.

UNGUENTUM CREDÉ

OINTMENT OF SOLUBLE
METALLIC SILVER.

XEROFORM

TRIBROMPHENOL BISMUTH
—Von Heyden.

HYRGOLUM

SOLUBLE METALLIC
MERCURY.

CONTENTS (Continued from Page 7).

"Rudolf Virchow Fund" 173

Prostatic Abscess Which Opened Into Both Urethra and Rectum 174

Soda Compresses in Suppuration 175

Renal Colic 175

Quick Removal of Tape Worm 175

The Influence of Bile on Metabolism .. 176

Diabetes—A Successful Treatment 176

Purulent Endometritis 176

EDITORIAL 177

The Organization of the Medical Profession — Experimental Tests — The Doctor's Duty—Poisons and Publicity.

WORLD'S FAIR
AK
OPPOSED TO PAIN
ST. LOUIS. U.S.A. 1903

THE ANTIKAMNIA CHEMICAL COMPANY – ST. LOUIS – U. S. A.

THE TWO GREAT REMEDIES OF THE AGE

Hayden's Viburnum Compound
and Hayden's Uric Solvent

"H. V. C." the standard **ANTISPASMODIC, NERVINE,** and **UTERINE TONIC.**

Used and recommended by the majority of the Medical Profession of the United States.

The **URIC SOLVENT OF DR. HAYDEN** has been most successfully employed in all diseases of the **KIDNEYS, RHEUMATISM, NEURALGIA, GOUT,** etc., as it removes the cause of the complaints by eliminating the **URIC ACID** from the system. Send for booklets.

New York Pharmaceutical Co.
SOLE PROPRIETORS
BEDFORD SPRINGS, MASS.

Profit

What doth it profit a patient whose digestive power is *nil,* to pour a quantity of food into a stomach that cannot take care of it?

Liquid Peptonoids

contains enough *immediately available* nutrient material to sustain strength and life for months at a time in exhausted conditions when other foods cannot be absorbed. It thus repairs the nutritive

Loss

One to two tablespoonfuls
4 to 6 times a day.
The Arlington Chem. Co.,
Yonkers, N.Y.

TABLE OF CONTENTS.

ORIGINAL ARTICLES.

Tetanus. By Thomas C. Craig, M.D., New York.. 181

Practical Results from Examination of the Stomach Contents. By E. Guy Hopkins, M.D., Richmond, Va...... 191

Disinfection Within or Without the Body in Diphtheria. By M. A. Veeder, M.D., Lyons, N. Y.......... 197

The Treatment of Eczema and of Itching by Tumenol. By J. W. Wainwright, M.D., New York 201

SOCIETY PROCEEDINGS.

Baltimore Medical and Surgical Association 204

Continued on page 9.

EVERY MEDICAL MAN who has any experience in GYNECOLOGY will, we venture to say, admit that he meets very few women who have not some trouble with their menstrual functions, whether it be Amenorrhea, Menorrhagia, Metrorrhagia, Dysmenorrhea or some other irregularity. If he believes in the old adage that "experience is the best teacher," he will send and get a pamphlet containing the opinions of the leading medical men of the world as to the value of ALETRIS CORDIAL in these disorders.

A sample bottle will be sent free to any physician who desires to test it, if he will pay the express charges.

RIO CHEMICAL CO., St. Louis, Mo., U. S. A.

Argentamine

Has the most vigorous penetrative properties and the greatest antibacterial power of all the newer silver preparations.

Beta=Eucain

A safe and non-irritating local anæsthetic, four times less toxic than cocain, and sterilizable by boiling without decomposition.

UROTROPIN

Urotropin is the best and most efficient of all urinary antiseptics, sterilizing the urine, increasing diuresis, and dissolving calculi and deposits. By its use alkaline and putrid urines, containing micro-organisms, blood, mucus, pus, uric acid, and urates, are rendered normal in appearance and reaction. It limits suppuration and exercises a healing effect upon the inflamed mucosa of the urinary passages. It is the most reliable sterilizer of the urines of typhoid fever patients, acting also as a prophylactic. It is extremely valuable in calculous disease, acute and chronic urethritis and gonorrhœa, bacteriuria, prostatitis, acute and chronic gonorrhœal cystitis, vesical inflammation of the ammoniacal or acid varieties, pyelitis, pyelo-nephritis, phosphaturia, nocturnal enuresis, and for the irritable bladder of diabetes. It is a powerful antidote to the urinary poisoning that so frequently occurs in suppurative diseases of the genito-urinary organs. In renal colic the attacks are cut short, the after-pains are lessened or abolished, and recurrence is postponed. It has been used to great advantage in all the affections marked by deficient elimination of uric acid and the urates, such as gout and rheumatism; and it is indicated preparatory to and after all instrumentation or operative procedure upon the genito-urinary tract, to sterilize the urine and prevent infection.

Extremely favorable reports of its efficiency have been published by **Professors Nicolaier, Heubner, Casper, Belfield, Wilcox, McGee, Horwitz** and **Elliott, Drs. Brewer, Cohn, Flexner, Richardson, Ehrmann, Howland, Thompson, Dalton, Boeckmann, Cammidge,** and many others.

DOSE.—For adults, 7½ grains two or three times daily, best administered in half a pint of plain or carbonated water. Much larger amounts can be given when indicated, however, up to 60 grains or more daily.

Urotropin, prepared by **Chemische Fabrik auf Actien, formerly E. Schering,** of Berlin, Germany, is supplied in half ounce and one ounce vials and in the form of half gram tablets (7½ grains each), in paper boxes of twenty tablets.

Literature furnished on application.

SCHERING & GLATZ, 58 Maiden Lane, New York,
Sole Agents for the United States.

Glutol=Schleich

An odorless, non-irritant and non-poisonous antiseptic powder for the treatment of wounds; the best dry dressing for burns.

Schering's Glycero=Phosphates

guaranteed to be true glycero-phosphates, and not simple phosphates. Tonics and Stimulants to the nervous structures.

CONTENTS (Continued from Page 7).

EDITORIAL.

American Medical Association........ 207

American Association Life Insurance Examining Surgeons.............. 208

Wage War on the Mosquito in Louisiana............................ 209

The Verge of Insanity............... 209

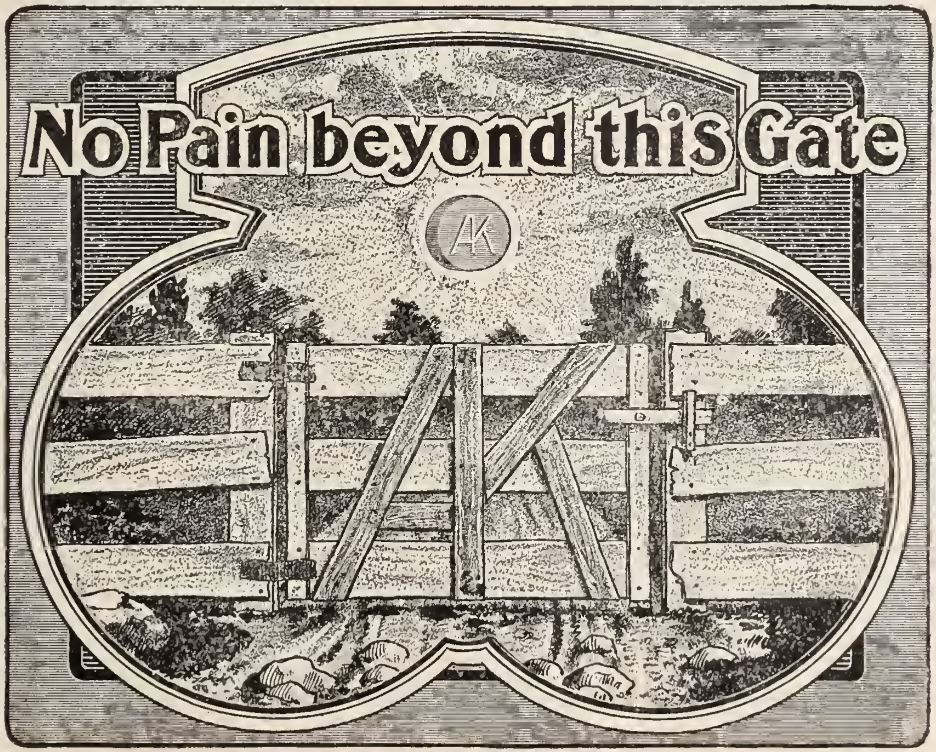
THERAPEUTICS.

Action of Iron on the Human System. By H. D. Peterson, M.D., Chicago, Ill.................................. 22

The Therapeutic Indications of Aspirin. By J. Ruhemann............ 24

Definite Medication 26

Neurosine....... 26


No Pain beyond this Gate
AK

THE TWO GREAT REMEDIES OF THE AGE

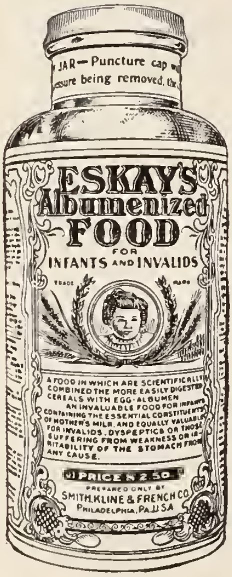
Hayden's Viburnum Compound
and Hayden's Uric Solvent

"H. V. C." the standard **ANTISPASMODIC, NERVINE,** and **UTERINE TONIC.**

Used and recommended by the majority of the Medical Profession of the United States.

The **URIC SOLVENT OF DR. HAYDEN** has been most successfully employed in all diseases of the **KIDNEYS, RHEUMATISM, NEURALGIA, GOUT,** etc., as it removes the cause of the complaints by eliminating the **URIC ACID** from the system. Send for booklets.

New York Pharmaceutical Co.
SOLE PROPRIETORS
BEDFORD SPRINGS, MASS.


JAR—Puncture cap
sure being removed, the
ESKAY'S
Albumenized
FOOD
FOR
INFANTS AND INVALIDS
TRADE MARK
A FOOD IN WHICH ARE SCIENTIFICALLY COMBINED THE MORE EASILY DIGESTED CEREALS WITH EGG-ALBUMEN
AN INVALUABLE FOOD FOR INFANTS CONTAINING THE ESSENTIAL CONSTITUENTS OF MOTHER'S MILK AND EQUALLY VALUABLE FOR INVALIDS, DYSPEPTICS OR THOSE SUFFERING FROM WEAKNESS OR IRRITABILITY OF THE STOMACH FROM ANY CAUSE.
PRICE $2.50
PREPARED ONLY BY
SMITH, KLINE & FRENCH CO.
PHILADELPHIA, PA. U.S.A.

ESKAY'S FOOD
In the
New Glass Package

just adopted and shown herewith, **has the air entirely exhausted** and the closure is held firmly in place by **vacuum pressure**, thus hermetically sealing it.

This protects the Food against any possible deterioration from the action of the air upon the particles of Food; and as the packages are germ-proof and the Food has, before packing, been thoroughly

STERILIZED

the medical profession will appreciate the value of this perfected process for protecting.

The Ideal Food
For Infants and Invalids

Samples and Clinical Reports Upon Application
SMITH, KLINE & FRENCH CO., Manufacturers
Philadelphia, Pa.

Contents, Pages 7 & 9. Advertisers' Index, Page 31.

GAILLARD'S MEDICAL JOURNAL.

Scientia et Veritas Sine Timore.

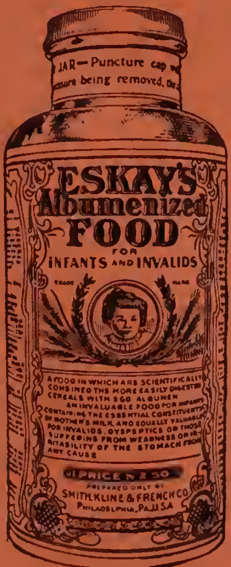
Entered as second-class matter at the New York Post-Office
Published by the New York Medical Publishing Co.
220 Broadway, New York.

EDITORS.
GEORGE TUCKER HARRISON, M.A., M.D. CARTER S. COLE, M.D.
E. GAILLARD MASON, M.D.

COLLABORATORS.
T. GAILLARD THOMAS, M.D., New York.
J. HERBERT CLAIBORNE, Jr., M.D
D BRYSON DELAVAN, M.D., New York.
STUART McGUIRE, M.D., Richmond, Va.
P. BRYNBERG PORTER, A.M., M.D., New York.

VOLUME LXXV. JULY, 1901. No. 1.

OF PHYSICIANS
PHILADELPHIA


JAR—Puncture cap
being removed, the
ESKAY'S
Albumenized
FOOD
FOR
INFANTS AND INVALIDS
TRADE MARK
A FOOD IN WHICH ARE SCIENTIFICALLY COMBINED THE MORE EASILY DIGESTED CEREALS WITH EGG ALBUMEN
AN INVALUABLE FOOD FOR INFANTS CONTAINING THE ESSENTIAL CONSTITUENTS OF MOTHER'S MILK, AND EQUALLY VALUABLE FOR INVALIDS, DYSPEPTICS OR THOSE SUFFERING FROM WEAKNESS OR IRRITABILITY OF THE STOMACH FROM ANY CAUSE
PRICE $ 2.50
PREPARED ONLY BY
SMITH, KLINE & FRENCH CO.
PHILADELPHIA, PA. U.S.A.

ESKAY'S FOOD
In the
New Glass Package

just adopted and shown herewith, **has the air entirely exhausted** and the closure is held firmly in place by **vacuum pressure**, thus hermetically sealing it.

This protects the Food against any possible deterioration from the action of the air upon the particles of Food; and as the packages are germ-proof and the Food has, before packing, been thoroughly

STERILIZED

the medical profession will appreciate the value of this perfected process for protecting

The Ideal Food
For Infants and Invalids

Samples and Clinical Reports Upon Application
SMITH, KLINE & FRENCH CO., Manufacturers
Philadelphia, Pa.

MICAJAH'S MEDICATED UTERINE WAFERS

ARE ESPECIALLY INDICATED IN

GONORRHEA

LEUCORRHEA

AMENORRHEA

ENDOMETRITIS &C

In selecting a remedy for the treatment of **Gonorrhœa,** one should be used which will not injure the delicate urethral mucous membrane, yet sufficiently powerful to destroy the gonococci. For this purpose Micajah's Medicated Uterine Wafers have proved of great service. They prevent cicatricial formation, and may be used in form of solution or a bougie combined with cocoa butter

In the treatment of **Leucorrhea, Micajah's Medicated Uterine Wafers** not only control the discharge, but exert a curative effect upon the diseased mucous membrane Previous to the insertion of the wafers copious irrigation of the vagina with hot water should be employed

The astringent, antiseptic and alterative of Micajah's Medicated Uterine Wafers serve to render them of great value in **Amenorrhea** in which they tone-up and stimulate the relaxed condition of the organs to their normal functional activity. In all menstrual disturbances these wafers will be found of inestimable value.

In inflammatory conditions of the mucous membrane of the uterus as **Endometritis** a remedy which will exert an astringent or depletive action is often desired. Prof Otto Juettner, says:—" Micajah's Medicated Uterine Wafers is the remedy par excellence in **Chronic Endometritis.**

Micajah's Medicated Uterine Wafers have stood the test of time (17 years) and like all successful preparations are most extensively substituted. **Caution** should be exercised in prescribing **Micajah's.** as satisfactory results always follow the use of the original wafers.

Sufficient Samples with literature will be sent gratis by mail by addressing

TRADE Micajah & Co. MARK
WARREN, PA.

AMMONOL

THE STIMULANT · ANALGESIC · ANTIPYRETIC · ETHICAL

AMMONOL is one of the products of Coal-tar, and differs from the numerous similar products in that it contains Ammonia in active form. As a result of this *AMMONOL* possesses marked stimulating and expectorant properties. The well-known cardiac depression induced by other Antipyretics has frequently prohibited their use in otherwise suitable cases. The introduction of a similar drug, possessed of stimulating properties, ***is an event of much importance.*** *AMMONOL* possesses marked anti-neuralgic properties, and it is claimed to be especially useful in cases of dysmenorrhœa. — *The Medical Magazine, London.*

Ammonol may be obtained from All Leading Druggists.

Send for "AMMONOL EXCERPTA," an 81-page Pamphlet.

THE AMMONOL CHEMICAL CO., Manufacturing Chemists,
LABORATORY 366 AND 368 WEST 11th ST. 18 EAST 17th ST., NEW YORK, N. Y.
LONDON—PARIS—BERLIN—VIENNA—ST. PETERSBURG—PARKEWOOD.

GAILLARD'S MEDICAL JOURNAL.

VOL. LXXV. NEW YORK, JULY, 1901. No. 1.

ARTERIO-SCLEROSIS.

By TALBOT JONES, M.D., of St. Paul, Minn.,

Visiting Physician to the City and County, and Bethesda Hospitals, Member
American Association Life Insurance Examining Surgeons,
American Medical Association, Etc.

The great and increasing mortality from arterio-sclerosis is the *raison d'etre* of this article. Following Whateley's advice, to begin by defining the thing which is to be the subject of scientific inquiry, it may be asked, what is meant by the term arterio-sclerosis? It refers to a disease of the arteries, characterized by a thickening of their walls, due to a deposit in the intima and media, with a diminution in the size of the lumen, with a secondary fatty degeneration and atheromatous (softening) ulcers in the intima. The vessels are tortuous and rigid. This condition is seen, first, in advanced life as a general senile change and is a natural process in age, where it is found associated with other evidences of senescence, *arcus senilis*, atrophy of the kidneys and general atrophy, and the degeneration is an expression of involution; and, second, at an earlier period as a result of alcoholism, syphilis, lead, rheumatism, gout, tobacco, the absorption of intestinal ptomaines, etc. The poisons of gout and syphilis act directly on the arteries, producing degenerative changes in the media and adventitia. The rôle of alcohol, lead and other toxines is more obscure; they may act by increasing peripheral resistance, in this way raising the blood pressure.

Yeo speaks of muscular strain producing excessive internal blood-pressure as a fruitful cause, "especially when such exercise is undertaken by a person of feeble organization, whose nervous energy and emulation prompts him to unequal contests." The poison of certain fevers, especially malaria, stand in a causative relationship. The town-dweller and wealthy eat too much meat. Poor people and peasants eat less, but of such inferior quality that the result is the same, namely, an excess of ptomaines.

Arterio-sclerosis affects, as a rule, the small and medium-sized arteries, yet the presence of the atheromatous changes in the aorta is very common. Cruci, Rokitansky and Lobstein show that arteries are affected in the following order of frequency: ascending aorta and arch of the aorta, descending aorta, splenic artery, iliac and crural arteries, coronary arteries of the heart, internal carotid and vertebral arteries in the skull, uterine arteries, internal spermatic arteries, common carotid arteries, hypogastric arteries. These refer to the larger arteries; of the smaller ones those of the kidney suffer most; the import of this will presently appear. The degenerative process may not affect all arteries in an equal degree; the thyroid, temporal and radial may alone be implicated, or the arteries of one organ of the body may be affected while other organs will escape. Sometimes the chief stress falls on the aorta, the coronary arteries of the heart, or, perhaps, the arteries ramifying the skeletal muscles. If localized in the renal gland, we have the cirrhotic kidney. It often happens that in cases coming to autopsy, we find arterio-sclerosis in certain internal arteries, while the external ones will not be appreciably affected. The reverse of this is also true. The degenerative changes may be confined exclusively to the cerebral arteries.

As so many different organs may be affected in unequal degrees, the symptomatology of the disease will be of the most varied character. The disease is undoubtedly often inherited; "the father's apoplexy may come to the son in the tendency to a fast life, and develop in him as a fatty heart or a rheumatic valvular disease or a degenerate kidney, or as paresis, insanity or inebriety" (Dr. Edgar Holden). The young man can say, perhaps too soon, like Ibsen's character, "My spine, poor thing, suffers on account of the merry life my father led when he was a king." "The fathers have eaten sour grapes, and the children's teeth are set on edge," says a higher authority than Ibsen. "Entire families sometimes show a tendency to early arterio-sclerosis—a tendency which cannot be explained in any other way than in the make up of the machine bad material was used in the tubing" (Osler). This paper, however, is not intended to be a dissertation on pathology; on the contrary, our investigation will be from the viewpoint of the clinician and the life insurance examiner.

Two questions arise: (a) is arterio-sclerosis really a very common disease; and (b), if so, why is there such profound silence regarding it by our life insurance authorities?

The disease is undoubtedly an extremely common one, but it is only within recent years that it has received the clinical attention which its importance deserves. Dr. Thayer, of Johns Hopkins Hospital, tells us "that it is seldom that an individual over 40 or 50 years of age is free from some evidences of the existence of this disease." It is a mistake to assume, as is often done, that the disease is one of advanced age only. It is sometimes marked at a period as early as the age of 35; on the other hand, certain individuals reach advanced age without developing arterio-sclerosis. In thirty-two autopsies at the St. Paul City and County Hospital, with reference to this point, made during the last few years on individuals 40 years old or over, I found unmistakable evidences of arterio-sclerosis in fourteen subjects. Guéneaud de Mussy found that of 160 cases of alteration of the arterial walls in different degrees, eighty—that is, just one-half—occurred in subjects under 45 years of age, and Curschmann found sclerosis of the aorta and aneurysm six times in individuals under 25, and both conditions still oftener in individuals under 30 years of age (Whittaker). Arterio-sclerotic changes sometimes declare themselves in early youth. Leubuscher has reported such a case in a nervous youth of 15 who had tortuous and hardened temporal arteries. But gross alteration of the artery wall is undoubtedly a disease chiefly of middle or advanced life. Demange declared that in 500 autopsies of old people he never met with a single case in which there was absolutely no atheroma. Age, however, is a very indefinite expression. "Some men are old at 40, some are young at 60. According to comparative anatomy or zoölogy, man is entitled to live 100 years. The actual fact is, however, that life is much abbreviated, chiefly by disease and mostly by this disease. Aside from accidents, under which may be included deaths from acute infections, life is usually terminated, as stated, by the slow process of arterio-sclerosis. Advancing age is commonly said to produce this change by failure of nutrition. This statement is, however, only a paraphrase; it is a failure of nutrition which produces the signs of old age. It is accepted that the conditions which lead to arterio-sclerosis may be transmitted, and the evidence of it runs in families, as long life runs in certain families, or as premature apoplexies, heart failures, aneurysms, run in other families" (Prof. Whittaker).

M. Huchard, in his treatise on disease of the heart, says that arterio-sclerosis is peculiarly a disease of politicians, physicians and financiers, their liability to which is largely due to their practicing professions, in which the emotion is often intensified and which involve great liability to overwork. A disease which thus affects either separately or conjointly numerous and widely separated organs of the body must needs induce curious perversions of function and give rise to a correspondingly dissimilar symptomatology. "If the disease should fall with special stress on the arteries of the brain, the brain-worker will become conscious that his work is produced with greater effort to himself. There is often a general indisposition to either physical or mental labor. If the brain vessels are but little affected, the mind may remain strong and clear, but there is usually much dejection of spirits, hypochondriasis or actual melancholia, irritability, alteration of disposition; later, as the process advances, occur weakening of the mental faculties, impairment of motion, vertigo, insomnia, transitory aphasia, mental disturbance, nocturnal delirium, delusions, and finally the general wreck which is characteristic of softening of the brain. Apoplexy and hemiplegia from rupture of miliary aneurysms may at any time vary the scene." In advanced arterio-sclerosis puzzling symptoms of transient hemiplegia, monoplegia and aphasia are sometimes observed, in which recovery seems to be perfect. It is now pretty definitely settled that at last several varieties of Bright's disease are the result of arterio-sclerosis, and not the arterial disease the result of the nephritis. With Bright's disease we will have the urinary changes of chronic interstitial nephritis, the passage of a considerable amount of pale urine of low specific gravity, containing a small amount of albumin and hyaline and granular casts; the heart will be hypertrophied, and as a result of this combination the pulse will greatly increase in tension. In time the compensatory hypertrophy on the part of the heart will fail, and insufficiency of the valves with regurgitation follow; in other words, a dilatation will be added to the hypertrophy. The picture will then pass into that of rupture of compensation with congestion of the lungs, dilatation with incompetency of the right side of the heart, venous congestion of the liver, and dropsical effusions into the serous cavities and into the subcutaneous tissues of the lower extremities. Or, uremic symptoms, even coma, may appear very suddenly. When the coronary arteries are the principal sufferers, chronic myocarditis will result, and attacks of angina pectoris not uncommonly. Sudden death may ensue. Aneurysm is a very common result of arterio-sclerosis, particularly in the larger arteries, as the aorta and the arteries of the soft tissues, the brain and retina. In the extremities, diminution of the blood-supply will cause gangrene (J. Eichberg). Great stress should be laid upon the point that this disease is an extremely common one, yet despite this fact arterio-sclerosis is not yet firmly fixed in nosological systems; few, and only the very latest, text books on medicine treat of it, and, as to the life insurance authorities, they have thus far ignored it. For instance, no question relating to it is found in "the medical examiner's blank"; and the little booklet of "instructions to medical examiners" is equally silent respecting a disease which is perhaps the life insurance company's worst foe—a disease concerning which Prof. Whittaker does not hesitate to say: ". . . that individuals reach advanced age because of the absence of arterio-sclerosis, for, as will be seen, most deaths are due, directly or indirectly, to this degeneration" (Loomis & Thompson Prac. Med., Vol. II, p. 524). In speaking with a recognized life insurance authority, he remarked that the disease was a very important one, with a mortality which was admittedly great, but that this mortality had been tabulated under other named diseases.

For example, an individual dies who was the subject of contracted or cirrhotic kidneys and hypertrophy of the left heart. The cause of death will find its way into vital statistics as one due to Bright's disease, when, as a matter of fact, it ought to have been given as due to arterio-sclerosis, "for it is now definitely settled that Bright's disease is the result of the arterio-sclerosis, and not the arterial disease the result of the nephritis" (Eichberg).

"The idea becomes more and more clear to my mind that Bright's disease is not a disease of the kidney at all. The kidney is simply an 'end-organ'" (Van Santvoord).

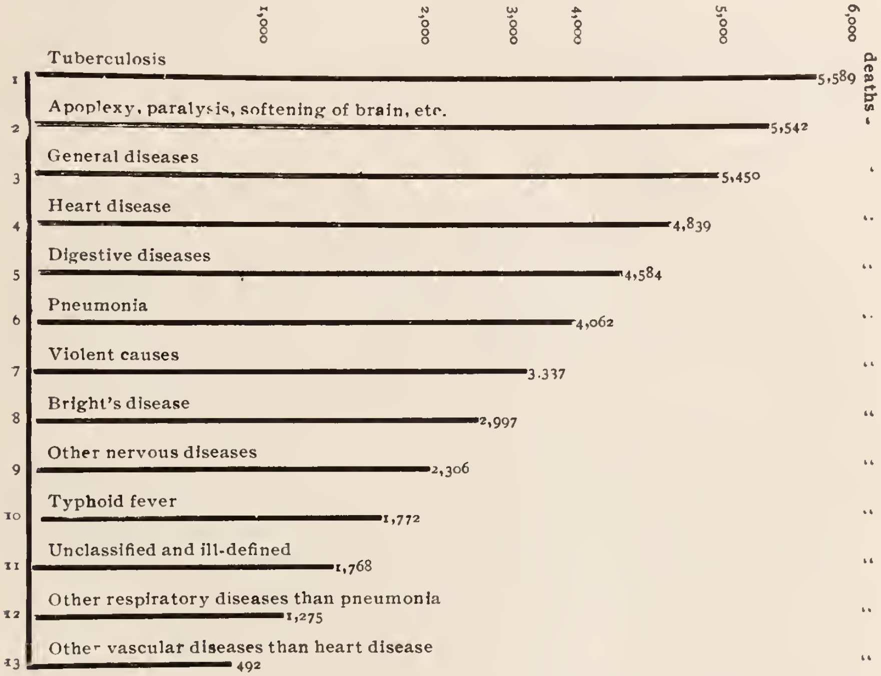
A second individual will die of arterio-sclerosis of the vessels of the brain. The cause of death will be given as apoplexy, atrophy, senile dementia, softening, as the case may be, when, as a matter of fact, the true cause was a wide-spread degeneration of the cerebral arteries, the brain, in this case, being the "end-organ."

A third person will die suddenly of aneurysm of the aorta. Again vital statistics will be misleading in that they will confuse cause and effect.

A fourth person will die of gangrene of the foot. The death certificate will say gangrene, but every pathologist will understand that the gangrene, whether senile or diabetic, was merely the evidence of the obliteration of the arterial trunk. A fifth person will die suddenly of angina pectoris, and it will get into the life insurance mortality tables under that name; another instance of confusing symptom and disease. The same ambiguity will be seen in many cases of chronic myocarditis, hemorrhagic retinitis, certain forms of emphysema, asthma and chronic bronchitis, many of which were primarily due to a widespread arterial degeneration, but the arteries themselves will not be mentioned.

The subjoined diagram shows in schematic form most of the deaths (46,525 in number, occurring fifty-five years) in the New York Mutual Life Insurance Company from 1843 to 1898, and the incidence and relative prominence of some specified causes of death:

In this diagram no death is recorded as having been due to arterio-sclerosis. The nearest approach will be found in another part of their statistics (Table III), where "aneurysm and other diseases of the arteries" are stated to have been responsible for 203 deaths. The enormous number of deaths due to "apoplexy, paralysis, softening of the brain, etc." (5,542); to Bright's disease, to heart disease, etc., many of which are, as we have seen, due primarily to arterial degeneration, shows in an unmistakable manner that arterio-sclerosis proved to be a costly foe to this insurance company, although its elaborate mortuary statistics do not once refer to it by name. Inseparably connected with the subject of arterio-sclerosis, in fact a part of its warp and woof, is the important problem of longevity—the problem whether a given individual has or has not been endowed with inherited tendencies to long life. Dr. Edgar Holden, in a paper on a cognate subject, read before the Association of Life Insurance Medical Directors in 1897, sententiously remarks: "In staking money on the continuance of life for fifteen, twenty or twenty-five years, it is important to know whether it belongs to the peach-tree line or the oak."



Is there, then, any way of ascertaining with reasonable certainty whether the individual applying for insurance belongs to the peach-tree line or the oak?

An answer will no doubt resolve itself largely into a consideration of the arteries of the individual, since longevity is, according to Prof. Osler, chiefly a vascular question, as has been well expressed, first, by

Cazalas in 1849, in the axiom that "a man is only as old as his arteries." Longevity is, however, not wholly a vascular question; intermingled with it are other factors, the consideration of which may repay and excuse a moment's digression. Prof. Humphrey, of Cambridge, in his well-known book on "Diseases of Old Age," says that longevity is, to a large extent, hereditary. "A robust frame, a bodily and mental stature above the average, the power of sound sleep and of speedy recovery after fatigue, good reproductive power and long retention of the hair of the scalp are the criteria of the capacity for prolonged life. The very aged are seldom found to be the offspring of immature marriages or to have contracted such themselves. It is noticeable also that the very old have seldom been in the habit of resorting much to drugs during life." Women have a greater tendency than men to long life, which is not necessarily forfeited by repeated parturition. The elder children of a family appear to have a slight advantage over the younger. The influence of occupation and environment on longevity are also matters of capital importance; in fact, they yield in importance only to heredity. A somewhat spare diet, little or no indulgence in alcoholic liquors, and in particular a guarded use of flesh meat, are also important points. The very aged have usually taken considerable outdoor exercise, their digestion has almost invariably been good, and they have nearly all possessed good-natured, cheerful and contented dispositions; hence they have, perhaps, unconsciously embraced the philosophy of Socrates, who declared "that he who has the least wants is nearest to the gods." The Grecian stories of the laughing philosopher who lived to be 120 years old, and of the crying philosopher who died at 60, show that among the ancients there was an appreciation of the fact that good humor tends to prolong life.

The diagnosis of arterio-sclerosis may or may not be easy. Certainly a large percentage of cases will be recognized by a reasonably clever physician, as the disease has a somatic basis as truly as has insanity. If the four signs which are regarded as pathognomonic of arterio-sclerosis, viz.: increased arterial tension, palpable thickening of the arterial walls, hypertrophy of the left ventricle and an accentuated second aortic sound, be present, it will be simply inexcusable to fail of a diagnosis. It is much more likely to be detected in private practice, where nothing will be concealed by the patient, his mental attitude being that of unreserved co-operation, than in a life insurance case, where the examination will be made in the rear of some ill-smelling tailor shop, or perhaps in some dingy feed store, the hardly-won applicant being greedy of his time, easily ruffled, and meeting the examiner with bored resignation or perhaps good-humored contempt; or, and what is a far more serious thing, he may be a man who will deliberately attempt to conceal from the examiner evidence of disease or degeneration, "whether concealed from a natural pride, the rebellion against approaching age, or from a desire to secure insurance" (Dr. E. Holden). Atheromatous vessels may be seen or felt in the radial and temporal regions as tortuous, pulsating tubes, unyielding, rigid to the touch. Sometimes the artery at the wrist feels like a chain of beads. More frequently these vessels escape while internal arteries are affected. Hypertrophy of the heart without other explanation (valve lesion, Bright's disease), in association with disease which might produce the condition, may lead to a diagnosis. Attacks of the angina pectoris and cardiac asthma may indicate sclerosis of the coronary arteries. The diameters of the heart are increased on account of hypertrophy or dilatation. The impact is more violent and extensive, the apex somewhat dislocated. The pulse is full, strong and unyielding; it may be retarded. The aortic valve sound is accentuated. Hemorrhage or evidence of softening may indicate rupture, aneurysmal dilatation, thrombosis or embolism of the brain arteries. Sooner or later supervene the signs of dilatation and degeneration of the heart, with edema, stasis, sometimes with uremia in connection with Bright's disease and with gangrene in connection with diabetes (Whittaker).

In the rather unusual cases where the sclerosis affects exclusively the internal vessels, a diagnosis will be impossible or at best conjectural. The same may be said of the still rarer cases where the arterial degeneration is localized in one organ of the body only, e. g., the kidney. To examine the radial pulse for thickening with the hand and forearm extended, will, to a great extent, render such examination nugatory; to get the best results the hand should be sharply flexed on the wrist and the forearm flexed on the arm. Under these circumstances muscular relaxation is at its maximum, and the indurated artery will be felt as under no other conditions. "We have observed many times that an artery which gave the impression of being a little hardened, when the hand was extended, quite disappeared when the opposite position was assumed. This bending position also has the advantage of allowing the artery to be felt directly over the radius, so that the slightest loss of elasticity can readily be appreciated" (S. Mahillon).

Von Basch expresses the opinion that in every case where the pulse tension is permanently raised above 150 mm. Hg. as suspicious of arterio-sclerosis. Duclos considers the radial recurrent pulse a very early and important sign of arterio-sclerosis. Dr. Church calls attention to arterial disease as a neglected, but nevertheless very frequent, cause of vertigo. There will be a tortuous frontal artery, an arcus senilis, a clanging second sound of the heart, scanty urine, and perhaps a trace of albumin. The giddiness is often accompanied by a fulness and throbbing in the head, a feeling of heat in the scalp, a blur before the eyes, and a transient pallor of the face. Sometimes the arterial degeneration stands in a causal relationship to progressive paralysis, when will be displayed the unbounded egotism commonly observed in that affection. When Mirabeau lay dying and he said to his servant, "prop up my head carefully, for it is the most remarkable head in all France," his speech clearly indicated that he was the victim of arterio-sclerosis. If difficulties arise, as they surely will, as to the diagnosis of the disease, it will be well to remember that syphilis has special predilection for the vessels of the brain, saturnism for the vessels of the kidneys and intestines, alcohol for the liver, and gout for the vessels of the kidneys.

I should now like to direct attention to a new, and what I believe to be a real, addition to our knowledge of the diagnosis of early arterio-sclerosis: F. Friedmann (*Wiener Klinische. Woch.*, June 21) says that "when the descending aorta is auscultated from the rear, the sound is heard most distinctly at a point which becomes constantly lower with increasing age. In case of senile involution and of arterio-sclerosis at any stage, the sound is most pronounced at a point on a line between the lower corner of the scapula and the seventh dorsal vertebra. The second aortic sound is most distinct. A groaning sound at the angle of the scapula can, therefore, be accepted as a direct initial symptom of an arterial affection, constant even in the incipient stage."

From a limited experience in private practice with this method I am inclined to think that the author has made good his claims.

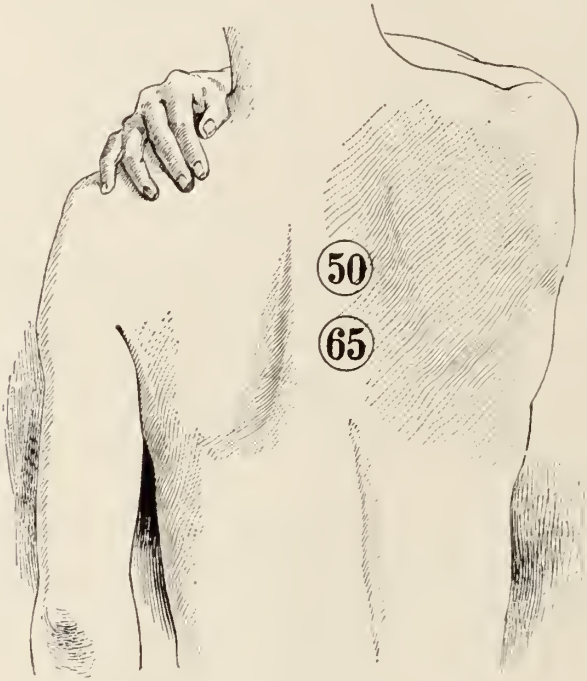


FIG. 1.—THE HUMAN CHEST, REAR VIEW.

The two circles indicate the location of maximum intensity of the aortic sound when auscultation is practiced from behind. The figures, 50 and 65, respectively, stand for the age of the individual, i. e., he is fifty or sixty-five years old. It will be noticed that the circle becomes lower and lower with advancing age.

Reverting for a moment to the valuable and elaborate mortality statistics of the New York Mutual Life, a study is made by that company "of the relation between the causes of death and the duration of insurance," i. e., a study of how soon following medical selection and insurance that death losses begin to be experienced by the life insurance company, and what diseases are chiefly responsible for such early mortality. The total number of deaths "from apoplexy, paralysis, softening of the brain," etc., was 5,542, the mortality being exceeded by only one other disease, namely, tuberculosis. Adverting to this, the medical director of the company remarks concerning apoplexy and degenerative diseases of the brain that "the progress is so gradual that they produce no symptoms or evidence of their existence until a sudden rupture or obstruction causes apoplexy or paralysis and death;" and, again, "the medical examiner has no means of ascertaining, or reason for suspecting the true condition in the majority of instances . . .;" and, again, "the death rate for apoplexy is nearly as high at first as at any subsequent time." There are many who will be disposed to dissent from the conclusions reached by the medical directors, that "the medical examiner has no way of ascertaining or reason for suspecting the true condition," etc. The diseases named being due to arterio-sclerosis, this degeneration of the arteries can, and perhaps ought, to be detected at a medical examination; at least such is the general consensus of opinion by many of our best authorities. Hence, the difficulties as to diagnosis referred to by this company are, I think, scarcely justified; or, at least, are much exaggerated. Arterio-sclerosis has its stigmata quite as pronounced as hysteria, for instance, or meningitis. It will be remembered that an individual who is destined to die within, say, one year, of apoplexy, etc., evidently is the subject of arterio-sclerosis in an advanced stage—a stage when the disease is certainly susceptible of detection in a majority of cases.

The individual who is the subject of arterio-sclerosis holds life by a precarious tenure. Sclerosis of the brain, of the heart, of the kidneys are irremedial affections. So long as these vital organs be not extensively involved, the prognosis may not be immediately unfavorable. Certain alterations of the arteries may be compensatory in the same way that certain heart lesions are compensatory. A failure of nutrition which cannot be overcome, or even arrested, is a grave symptom. True stenocardia, cerebral softening, cirrhosis of the kidney or hypertrophy or dilatation of the heart, it need scarcely be said, all have an unfavorable immediate prognosis.

THE DIAGNOSIS AND PROGNOSIS OF CHRONIC INTERSTITIAL NEPHRITIS.

By EDWARD F. WELLS, M.D., Chicago, Ill.

It is proper for me to state that this subject is approached by me entirely from the standpoint of the family physician and that the methods employed for making early diagnoses are warranted and advisable for safeguarding the patient's own existence. Further, that observation of an individual for many years, perhaps, offers opportunities for diagnostic results which may be unattainable at single, or from a few interviews. It is certainly my experience, and it may be yours as well, that plainly apparent facts are not always seen or fully appreciated at first glance; and if this be true, how much more likely may we be to overlook or misconstrue the minor changes and less obtrusive symptoms.

Chronic interstitial nephritis, otherwise known as cirrhosis of the kidneys, chronic Bright's disease, etc., etc., is that well-known, stealthily-beginning and slowing-advancing renal process which finally results in symmetrical granular contraction and atrophy of the kidneys. But it is more than this: The wide-spread cardio-vascular changes point unerringly to the conclusion that we have to deal with, originally and essentially, a sanguineous alteration which renders the blood irritating to the capillaries generally, and to those of the renal cortex in particular. The nature of this sanguineous change is not certainly known. It may be due to the toxins of some organism introduced from without into the system, but this is improbable. It may be due to some error of digestion, assimilation or excretion, or to some abnormality in the function of some one of the granular or cellular tissues. It may be due to the presence, to excess, for the individual, of uric acid. Symptoms which are of such prominence as to lead the patient to consult his physician only appear after very serious damage has been done, and the more or less long delayed but fatal termination usually occurs as the result of uremia, apoplexy or cardiac failure.

Without ignoring the many factors which are no doubt actively contributory to the causation of chronic interstitial nephritis, I may mention the fact, which is especially important in this connection, that middle-aged or older men, who are robust, actively and energetically aggressive, and good livers, are peculiarly apt to develop this malady. These are the successful men of affairs, and these are the men who, as I am informed, often take out large lines of life insurance. From many points of view they are very desirable policy-holders for any insurance company, but it is in this class that the largest and most unexpected losses occur. In private practice they are the patients who give their physicians much concern and anxiety. They do not bear well the severe acute infections, as, e. g., pneumonia, typhoid fever, etc., and they are, as stated, peculiarly liable to become the victims of chronic interstitial nephritis.

Chronic interstitial nephritis, and the associated cardio-vascular changes have their beginning at that time when the essential chemicotoxic causative agent appears in the blood in such quantity as to irritate, in the peculiar manner necessary to bring about the characteristic lesions, the capillary endothelia, particularly in the kidneys. There may be, therefore, a distinct premonitory stage; and there is, certainly, a very early stage of the disease in which the lesions are very slight indeed, but these stages must elude observation until we shall have at our hand more definite information as to the essential cause of the malady, together with the means of detecting it in the blood, secretions or excretions; or until certain symptoms which are now of doubtful significance have been given a more definite value.

Let us now attempt to estimate the diagnostic value, relative and absolute, of some of the more important symptoms of chronic Bright's disease, and trace these back as far as possible into the earliest or premonitory stage, in order that we may anticipate or detect its presence at the earliest possible moment. Preliminary, it may be stated:

1. That every person, middle-aged or past, should have the urine examined twice a year, and that in the case of a robust, active man who is a good liver, and who is engrossed in business, such examination should be made three or four times a year.

2. The specimens for examination should be (a) three ounces of the mixed twenty-four hours' urine, properly cared for and accurately measured, and the vial labeled with the name, date, and quantity passed in twenty-four hours. If the patient voids urine at night, the quantities passed during the day and night should be separately measured and noted, but the specimen should be of the mixed urine. (b) One ounce of freshly passed urine, possibly voided in the presence of the physician.

3. The routine examination and record should embrace the name, date, quantity of specimen, total urine in twenty-four house, transparency, color, by Vogel's scale; reaction of twenty-four hours and fresh specimens, respectively; specific gravity, estimation of total solids, urea, percentage and amount in twenty-four hours, volumetric and estimated gravimetric percentage, and twenty-four hours' quantity of chlorides, phosphates and sulphates, using the centrifugal method and tables of Purdy; albumin, qualitative and quantitative; sugar, qualitative and quantitative; casts, presence and character; epithelia and their form, blood, pus, sediments, crystalline and amorphous; micro-organisms; other pertinent facts.

The total quantity of urine voided in twenty-four hours by the average healthy adult in this climate is about 48 ounces; however, this varies, for the individual, within wide limits, but it is oftener markedly below than above the average named. Habits of eating and drinking have much to do in increasing or decreasing the excretion of urine. The greatest quantity of the twenty-four hours' urine is discharged during the afternoon and evening, a smaller proportion during the forenoon and the least during the night. In cases of confirmed interstitial nephritis the total quantity of the twenty-four hours' urine is increased, and the relative amounts passed during the afternoon and evening, forenoon and night, is the reverse of the normal, and this change can be traced gradually backward to the beginning of the trouble. It may be stated, therefore, that if a person habitually arises at night, or very early in the morning, to urinate, and if the quantity of urine passed at night and in the early morning constantly approximates or exceeds that of the afternoon and early evening, and if the total quantity of the twenty-four hours' urine is always markedly in excess of the normal, the physician should be thrown upon his guard, and the health of such person should be given a thorough and, perhaps, a prolonged investigation.

The color of the normal twenty-four hours' urine ranges through the yellows and ambers, varying, mainly, with the quantity of fluids ingested, amount of food indulged in and the vigor and character of the exercise taken. In interstitial nephritis and the so-called renal insufficiency, which usually eventuates in, if it is not really an early stage of chronic Bright's disease, the urine is not only relatively, but absolutely and habitually light in color. Therefore, although such urines are found in other diseases and states of the system, pale urines should lead to careful examination, not only of the urine itself, but of the functions of the other organs which are liable to be deranged in this affection.

The specific gravity is relatively and absolutely reduced, and urines which are habitually of this character should be viewed with suspicion. It is clear that in this particular, as in so many others, a specimen of the twenty-four hours' urine is required if our observations are to have any real value. The total solids may be approximately estimated by multiplying the decimal of the specific gravity by Haeser's coefficient, 2.33.

In chronic interstitial nephritis the urea is usually early diminished, relatively and absolutely. Instead of from 400 to 500, or more, grains of urea being passed in twenty-four hours, the quantity may be reduced to 400, 300 or 200 grains. If, then, an adult habitually voids urine which is absolutely deficient in urea, and which deficiency cannot be readily explained by the character of the diet used and lack of physical exercise, such person should be viewed with suspicion, and it will only too often prove to be the case that, in due time, other and, to some, more conclusive evidence of chronic Bright's disease will be found.

To this rule there are exceptions and the observer should not be too easily thrown off his guard. The following case, bearing upon this point, is one of a number of which I have notes:

Case I.—A gentleman, 43 years of age, whose father died at 64 of chronic Bright's disease, and whose mother and three brothers are all lithemic, has always been subject to attacks of headache and biliousness. He had taken meats largely, has eczema, and is a strong and active man. A year ago marked uremic symptoms—headaches, gastric disturbances, somnolence, albuminuric retinitis, etc.—developed. The following table shows some of the salient urinary features, before, during and since the uremic attack:

Date.	Amount in 24 hrs., ozs.	Specific gravity.	Urea.		Purdy's Method.			Albumin.	Casts.
			Per cent.	24 hrs., grs.	Chlorides, %	Phosphts., %	Sulphts., %		
April 10, 1899.......	...	1.028	2.7	...	12.0	8.5	2.5	Absent.	Absent. [1]
Feb. 29, 1900.......	46	1.022	2.25	497	9.75	8.0	1.5	Absent.	Absent [2]
April 14, 1900.......	144	1.036	0.3	207	4.5	1.0	1.0	Trace.	Hyaline.[3]
April 23	104	1.010	0.9	449	3.5	3.0	1.0	Trace	Few " [4]
May 18	120	1.010	0.7	403	5.0	4.5	1.3	Absent.	" " [5]
Sept 17	106	1.010	0.63	318	7.5	3.5	1.0	Absent.	" " [6]
Dec. 6	56	1.012	1.4	269	4.0	5.0	0.7	Trace	" " [7]
Jan. 7 1901..........	56	1.020	2.25	605	9.0	6.0	1.0	Absent.	Absent. [8]
Feb. 26	64	1.020	2.2	676	12.0	7.0	1.2	Absent.	A few. [9]

Remarks: [1]Note sulphates. [2]Uremic symptons. [3]Profound uremic symptoms. [4]Severe uremic symptoms. [5]Uremic symptons declining. [6]No uremic symptoms. [7]A few chromocytes and leucocytes. [8]No uremic symptoms. [9]No uremic symptoms.

In chronic Bright's disease the excretion of chlorides is, as a rule, slightly, but perceptibly, reduced. On the other hand, the relative and absolute quantity of phosphates in the urine is markedly diminished. This is one of the earliest and most characteristic of the signs of this disease, and I have met with few exceptions to the rule, and when it is persistently present, other signs and symptoms may be anticipated with considerable confidence, although they may be delayed for months or years. The sulphates are often relatively increased in the early stages, to be slightly reduced later. As already stated, the centrifugal method of Purdy should be used in estimating the bulk percentages of the chlorides, phosphates and sulphates, and the full and accurate tables of this lamented investigator and clinician may be appealed to for the purpose of reducing these bulk percentages to those of chloride of sodium and chlorine, phosphoric acid, and sulphuric acid, respectively. I am quite sure that any marked and persistent departure from the normal relative proportions which the chlorides, phosphates and sulphates bear to each other and to the total quantity of urine should lead to careful scrutiny of the case.

In ordinary, uncomplicated cases of chronic interstitial nephritis, albumin is present in the urine intermittingly and in small amount. From this rule there are so many exceptions that it is rendered of comparatively little diagnostic value. In some cases the urine remains free from albumin until very late in the progress of the case. In a larger proportion of cases the urine, while ordinarily free from it, shows traces of albumin at intervals, apparently as the result of renal congestion, due to various causes, but especially to chilling of the cutaneous surfaces and digestive disturbances, and under these circumstances the bowel movements will be foul and the urine will contain an increased amount of sulphates and often a few chromocytes. In another class of cases albumin is constantly present, in small, moderate or considerable amounts, with periods in which it is greatly increased. In these cases the proportion of albumin may range from 1 to 10 or 15 per cent., as measured in bulk by Purdy's centrifugal method. It is worthy of note that, as a rule, the cases with persistent and moderate albuminuria show urines of a higher specific gravity and a larger output of urea and inorganic matter than do those of an opposite character.

It should here be stated that the urinary characteristics which have been mentioned do not apply to the late stages of chronic Bright's disease. At this time, when the heart begins to fail and does not again regain its balance, the urine becomes less copious, of darker color, of higher specific gravity, the urea, phosphates, chlorides and sulphides are present in larger relative proportion.

Casts are usually present in the urine in cases of chronic interstitial nephritis. They are of the hyaline and degenerative varieties, and the greater number of them are narrow, rather than broad. In some cases they are so sparse that, notwithstanding centrifugation and careful search, they may elude observation for many consecutive days. Hence the failure to find casts in any specimen of urine is neither conclusive nor presumptive evidence that chronic Bright's disease is not present, and this fact cannot be too strongly impressed upon the medical mind. On the contrary, hyaline casts may be sparingly found at some time in the sediment of centrifuged urine of a considerable number of persons, middle-aged or past, who are not and never become the subjects of the affection under discussion. In some cases of chronic interstitial nephritis, especially those accompanied by marked albuminuria, casts are more abundantly present, and they may be largely of the broad variety, many of which may be granular. Casts are found in greater numbers after the "taking of cold," along with the acute infections and with gastro-intestinal disturbances. It is worthy of note that, independently of obvious causes, casts are apt to appear in the urine in irregular showers. In some cases many days, or even weeks, may elapse during which time casts are absent or are found only after prolonged search, when, for a few days, they may be quite numerous. This I have witnessed so often that I feel sure there is no mistake in the observation.

The toxicity of the urine is diminished in chronic interstitial nephritis. This has been definitely established in the later stages, and we have every reason for believing that this is true, in a gradually lessening degree, as we recede toward the beginnings of the disease. The toxicity of the urine depends upon several distinct substances which are well known by their effects, but all of which have not as yet been definitely isolated. Of these may be mentioned (1) urea, which is diuretic and toxic only in very large doses; (2) potassium in excess, causing convulsions; (3) a fixed organic —alkaloidal—substance which is retained by carbon filtration, is insoluble in alcohol and is capable of causing convulsions; (4) a fixed organic substance, removable by carbon, which causes myosis; (5) a fixed organic substance, non-removable by carbon and soluble in alcohol; which causes narcosis. This is excreted largely in the day urine; (6) a fixed organic substance which reduces corporeal temperature. These various toxic substances are present in normal urine in certain definite but varying proportions. In chronic Bright's disease they are, as a whole, diminished, often to an extraordinary degree, and their proportional presence is altered. It is clear that the toxins of these classes, which are not destroyed in the blood, the liver or other organs, and which are not removed from the circulation, remain in the blood within the vessels and in the serum in the tissues outside the blood vessels. It is possible, and even probable, that the future may present us with some available clinical methods for putting to practical use some of the information which we possess along these lines. At the present time we may foretell, by proper animal experimentation, with a fair degree of accuracy, the form which an impending uremia will take.

It is not sufficient for our purpose to know that there is being excreted urine which is deficient in excrementitious materials, including the toxins, and that this deficiency reaches a certain definite degree. It is of equal importance to know the latent capacity of the kidneys. For this purpose the twenty-four hours' urine should be carefully examined daily, for periods of several days each, with the patient under (1) ordinary diet and regimen; (2) with a moderate but extra nitrogenous diet and increased muscular exercise; (3) with further considerable and increasing quantities of nitrogenous foods and increased exercise until the quantity of urea, chlorides, phosphates, sulphates, toxins, etc., have attained or exceeded the normal or the limit of their increase has been reached; and (4), finally, after a few days, with the patient upon the diet and regimen which your judgment leads you to infer will be best for the patient. With such information at hand you are prepared to intelligently estimate the extent of renal involvement, and, by subsequent repetitions, the progress of the disease.

That the individual excretory cells of the kidneys are possessed of an enormous reserve capacity I believe to be true. Confining myself to clinical evidence, the following case, which might be duplicated, is offered in illustration:

Case II.—A very active, robust man, aged 63, has been the subject of chronic interstitial nephritis for many years, probably fifteen or twenty years, and has been uremic for five or six years, several of the uremic attacks being of extreme gravity. The main characteristics of the urine are shown, from time to time, in the following table:

Date.	Amount in 24 hrs., ozs.	Specific gravity.	Urea, Per cent.	Urea, 24 hrs., grs.	Purdy's Method. Chlorides, %	Purdy's Method. Phosphts., %	Purdy's Method. Sulphts., %	Albumin.	Casts.
May 9, 1900........	80	1.008	0.75	288	3.0	4.0	0.6	Trace.	Hyaline.
Nov. 11	72	1.004	0.2	69	2.0	6.0	0.3	Absent.	A few.[1]
Nov. 30	85	1.004	0.5¼	214	0.8	2.5	0.8	Trace.	A few.
Dec 31	72	1.008	0.8	276	3.0	5.0	0.5	Absent.	Absent.[2]
Feb 2, 1901........	70	1.004	0.6	192	3.5	2.0	0.3	"	Absent.
Feb. 28	90	1.0045	0.5	216	3.0	3.0	0.3	"	A few.[3]
Mar. 16	90	1.008	0.6	259	3.5	2.0	0.4	"	"[4]
Mar. 20	43	1.010	0.9	177	3.0	2.5	0.8	Trace.	"[5]
Mar. 23	59	1.020	1.8	510	3.0	1.0	1.0	"	"[6]
Mar. 29	48	1.012	1.3	300	7.0	5.0	0.8	"	"[7]

Remarks: During preceding two years output of urea varied from 100 to 300 grains per 24 hours, ranging usually between 150 and 200. [1]Uremic symptoms. [2]La grippe. [3]Uremic; drowsy. [4]Profoundly uremic; blood serum contained 0.7% urea; urine practically non-toxic for rabbits. [5]Continues uremic; serum contains 0.55%; actively maniacal; blood urea. [6]Note large output of urea. [7]Pus cells; cystitis.

In this case it is clear that, under extraordinary stimulus, probably from the newly-formed urea, incident to the excessive muscular activity accompanying the maniacal condition, which was thrown into the already surcharged blood serum, the secretory kidney cells became so active that, for the patient, fully twice the average amount of urea was discharged in the twenty-four hours of March 23. This I have witnessed in other similar cases, and I consider the subject of considerable practical importance.

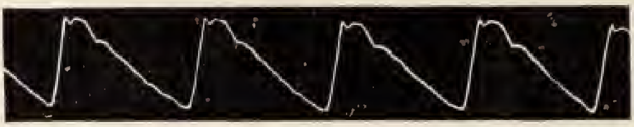
A knowledge of the amount of urea and other excrementitious principles, including the undefined toxic ones retained in the blood serum, is of prime importance, and it is to be hoped that the near future will present us with readily available methods for their estimation.

I will now leave this interesting field for a few moments for the purpose of calling your attention to some of the symptoms of chronic interstitial nephritis. In this connection I wish to ask you to remember that I am limiting my remarks, in the main, to those cases in which the diagnosis is somewhat obscure and that the symptomatology of those cases in which the diagnosis is clear to even him who reads is not being considered.

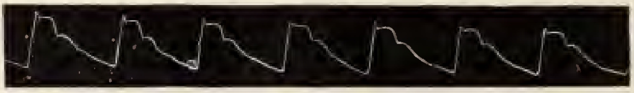
That chronic Bright's disease is, from the first and up to the late stages, accompanied by increased arterial tension, is true. It is also true that this increased tension is at times augmented beyond the ordinary for the case. It is also true that along with this increased arterial tension that the muscular and fibrous tissues of every part of the arterial system, including the capillaries, arteries and heart, become thickened, hypertrophied and more resistant. It is not true, however, that every case in which there is increased arterial tension, with cardiac, arterial and capillary hypertrophy is certain to become one of chronic interstitial nephritis.

These cases may all have a common causative vascular irritant, as, e. g., uric acid in excess, but in some the condition appears to lead up to, or accompany, the renal alterations, while in others certain retrograde changes seem to occur by which the vascular walls become loaded with lime or even undergo a species of fatty degeneration, without any changes whatever in the kidneys.

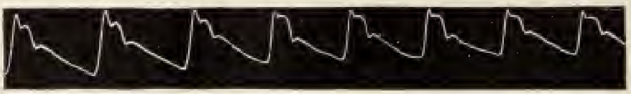
For clinical purposes the sphygmograph will show from time to time the state of the circulation, cardiac energy, peripheral resistance, resiliency of the artery and arterial tension, as shown in the tracings.



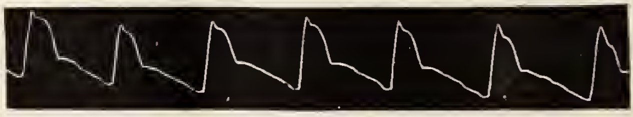
Male, aged 75. Well developed chronic interstitial nephritis, with large output of urea and other excrementitious principles. Uremic manifestations for several years; later death from uremic convulsions.



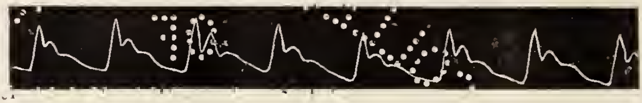
Female, aged 68. Developed chronic Bright's disease, following years of excessive activity. Mild uremic symptoms at intervals.



Male, aged 62. Developed chronic Bright's disease. Uremic symptoms at intervals for several years.



Female, aged 44. Developed chronic Bright's disease, with uremic attacks. No arterio-sclerosis and with slight dilatation of right ventricle.



Male, aged 42. Developed chronic Bright's disease, with uremic attacks. No arterio-sclerosis. Under influence of iodides.

As highly as I value the sphymograph, I am sure that its tracings in chronic interstitial nephritis have been accorded a diagnostic value altogether beyond their merits. This is not to the discredit of the instrument, for it affords the best practicable means for estimating and recording the characters of the pulse, but it does depend upon a faulty appreciation of the infinite variations of the pulse in health and in disease, and in the same person at various times.

In interstitial nephritis the heart is invariably enlarged, especially downwards and to the left; this enlargement is clearly evident upon careful percussion. The increase in the cardiac dimensions to the right is not marked until late in the disease, when the right ventricle gives way under cardiac failure. The cardiac sounds are usually remarkably clear and distinct. The second aortic sound is accentuated. Too much stress should not be laid upon the latter, inasmuch as in elderly persons, who furnish the greatest number of cases of chronic Bright's disease, this sound is normally accentuated. It is of greater import when it occurs in younger persons. Powerful cardiac contractions, with comparative capillary stenosis, causes the arteries to become elongated and tortuous.

Vision is affected in a considerable proportion of cases. This is usually not often an early symptom, but it is remarkable that in a considerable proportion of cases in which it does occur it is the first symptom noticed, and somewhat to the discredit of internal medicine is first observed by the ophthalmologist. The lesion may be either an albuminuric retinitis or some retinal hemorrhage. It is important to clearly differentiate between these two forms of aberrant vision, for the reason that in the former the prognosis is very much better than in the latter. In the latter, death usually occurs within a few months or years, whereas in the former the course of the disease may be very prolonged. The dictum, that when vision is once pronouncedly affected in interstitial nephritis, the patient is doomed to death within two years, must be modified along the lines above mentioned. A number of nervous symptoms demand the closest attention, inasmuch as they are not only indications of interstitial nephritis, but are essentially uremic manifestations, and, when present, unless extraordinary measures are taken for the relief of the patient, profound uremic symptoms are almost sure to soon appear. These nervous symptoms are: Muscular twitchings, especially of the muscles of the hand and forearm, and to a lesser extent of those of the face and other portions of the body. Along with this there is a general nervous condition. The patient is restless, inclined to be constantly upon the move. There are also muscular pains and headaches, the latter usually of a peculiar character, being referred to by the patient as a pain in the head rather than a simple headache. There is also mental confusion, especially a confusion as to direction. The patient, for example, will arise from sleep at night for the purpose of moving toward a door, but will go in some other direction; actually becomes lost in his own bedroom. Or, alighting from a street car within a few doors of his residence, walks off in the opposite direction, becoming lost on streets with which he is perfectly familiar. This particular feature I consider of considerable importance. There is usually also some failure of memory, but this may be due to causes other than that of interstitial nephritis. Delirium, and even acute mania, occurs in a moderate proportion of the cases, and is occasionally the first symptom which attracts the attention of the attending physician. These, as well as the well-known convulsive features, drowsiness, etc., are all manifestations of uremia, and when the patient has recovered from such an attack he usually has no recollection of the occurrence. Postcervical neuralgia is a classical symptom; but I consider a general myalgia or pains affecting the fibrous tissues in the neighborhood of joints of equal import.

Dyspnea, accompanying or not accompanying exertion, is frequently encountered. An asthmatic attack, coming on without warning and during the night, is a symptom for which nephritic patients often first consult a physician. Such respiratory affections are recurring bronchitis, pleurisy, and especially pulmonary edema, should always lead to interrogation of the function of the kidney. Indeed, for many years I have seen no instance of pulmonary edema in an adult which was not an accompaniment of chronic interstitial nephritis.

Gastro-intestinal disturbances are of very frequent occurrence. The tongue is apt to be coated and there may be an increased amount of saliva in the mouth, with a peculiar, not easily described, odor noticeable when the patient opens the mouth. Those forms of gastro-intestinal disturbance collectively known as biliousness are frequently seen and are especially prone to occur after the taking of an unusually rich or hearty meal. There may be, and probably is, in these cases some hepatic insufficiency, but it does not show itself in the way of light-colored stools or jaundice.

The diagnosis of chronic interstitial nephritis must be based upon the directing symptoms, as above outlined, upon the cardio-vascular changes, and the urinary findings. These have been sufficiently detailed, and I can only add that the diagnostic difficulties in early interstitial nephritis and in some advanced cases should not be under-estimated. These can best be shown by detailing very briefly a few illustrative cases.

Case III.—A man, 65 years of age, had had chronic diarrhea for thirty years; was pale, short of breath on exertion, and voided urine of low specific gravity, deficient in urea, and increased quantity. Numerous examinations, extending over a period of four years, failed to reveal either albumin or casts in the urine. At the end of this time uremic symptoms, marked by drowsiness, mental aberration, delusions and cardiac failure, appeared, and with this the urine gradually decreased in quantity, increased in specific gravity and in color, and contained albumin and casts. The end was one typical of chronic Bright's disease with cardiac failure.

Case IV.—A lady, 52 years of age, had been under my observation for nine years, during which time there was constantly renal insufficiency, but only during the last year of her life were casts and albumin occasionally found in the urine. During the last three or four years of her life there were other and sufficient evidences upon which a diagnosis of chronic interstitial nephritis might be based.

Case V.—A lady, 42 years of age, has been under observation for six years, during which time there has been constantly present marked renal insufficiency. During four of these years no other symptoms or signs were noticed. Gradually peripheral neuritis, muscular pains and twitchings, a nervous condition, and one or two asthmatic attacks occurred. A year ago albuminuric retinitis developed, and very shortly after a profound uremia occurred. During this attack the urine contained albumin and casts. But since then neither albumin nor casts have been discovered. The only evidences at the present time of interstitial nephritis are appreciable cardio-vascular changes and a urine deficient in solids, and especially in urea.

Another class of cases offer further diagnostic difficulties.

Case VI.—A man, 68 years of age, a year ago suffered a severe attack of pneumonia, with acute nephritis. Since that time the urine has afforded no other evidence of nephritis than the presence of a moderate number of narrow, and a few broad, hyaline casts.

Case VII.—A man, 54 years of age, suffered from an attack of pneumonia two years ago, accompanied with evidences of acute nephritis. There have remained a few casts in the urine and occasionally a trace of albumin, but no other evidence of nephritis.

The proper standing of these two cases is not altogether clear. They should, however, be classed as doubtful.

The prognosis of chronic Bright's disease is in every way bad as to recovery. However, I am of the opinion that on an average the prognosis for prolonged life is much better than is ordinarily supposed. It is within the experience of every member of this Society to have seen cases of chronic interstitial nephritis in which a comfortable and useful existence was prolonged for a great many years—ten, twenty, or more. Even after uremic symptoms have become manifest, if such patients are surrounded with every device which is at our command, their lives may be prolonged for many years. With all this, and because these cases so often fail of early recognition, we must not under-estimate their gravity or lose sight of the fact that in many instances death occurs within a comparatively short period after the recognition of the affection.

4571 Lake Avenue.

PATHOLOGY OF DISEASES OF THE LIVER.*

By M. D. HOGE, Jr., M.D., Richmond, Va.,
Professor of Histology, Pathology, etc., University College of Medicine.

That part of the subject which has been assigned to me to-night for discussion is of such an extensive and important a nature that to undertake to speak even briefly upon each head would tax your time and patience too far; therefore, I have thought if your attention was directed to some of the most prominent, and at the same time most common affections of the liver, the time would be better spent.

That the liver should be a favorite and frequent location for parasites will be at once plain when we consider the fact that it, like that other important organ—the lung—has a double blood supply.

Entrance of organisms may be effected in three ways: (1) Through the systemic blood supply by means of the hepatic artery. (2) From the portal vein, which derives its blood from the branches coming from the stomach and intestines, mainly. (3) From the common bile duct, also communicating with the intestinal tract.

The amœba coli are associated with dysentery and hepatic abscess. Echinococci may occur anywhere, but over 45 per cent. of the cysts are found in the liver.

A form of sporozoa, the coccidia, form small, yellowish nodules, which later become cystic in character, growing mainly from the bile ducts. Typhoid baccili may remain for a long time in the gall bladder, and are possibly the cause of relapses from this disease. It is stated that the baccili have been found in the gall bladder of a patient operated on for gall stones ten years after having had a case of fever.

It may be safely said that whatever form of abscess is met with in the liver, it is due to micro-organism. When an injury has been received over the liver, pyogenic bacteria in the blood may lead to abscess formation. Cysts suppurate at times from trifling injuries. Traumatic abscesses are single; pyæmic abscesses are usually multiple and due to some putrefactive source of infection in the tract from which the portal blood comes, as ulcer of the stomach or intestines, septic diseases of the pelvic organs or phlebitis, due to calculus in the portal vein. Such abscesses are usually small and multiple in number, the walls are rough and ragged, and the surrounding liver tissue sodden with leucocytes and pus.

The form of suppuration known as tropical abscess is usually (75 per cent.) single, and is situated deep down in the right liver lobe, showing no trace of a definite wall. The disease is usually associated with dysentery due to amœba.

Cholangitis may be acute, chronic or suppurative. The acute form is generally secondary to duodenitis, but may also result from gall stones, foreign bodies, parasites (hydatids) or bacteria. The mucous membrane of the bile ducts is swollen and secretes abundant mucus. If the duct becomes obstructed, there is retention of bile and jaundice. The chronic form may follow an acute attack. It leads to a constant and permanent overfilling of the bile ducts, and is accompanied by obstructive jaundice. When the disease continues for a long time it leads to a form of fibrosis, known as biliary cirrhosis.

---

* Read before the Richmond Academy of Medicine and Surgery. March 12, 1901.

Cholecystitis may result from cholangitis, or be due to the presence of gall stones in the bladder. It is sometimes associated with pyæmia, pneumonia and typhoid fever. The colon, typhoid and the pyogenic organisms are frequently found. When it assumes a purulent character, empyema of the gall bladder results. Peritonitis sometimes occurs without rupture, or the discharge of pus may take place into the abdominal cavity or adjoining viscera.

When we recall the fact that the hepatic vein, after deriving its blood from the intralobular or central veins, which in turn are fed by the interlobular branches of the portal vein, empties into the vena cava inferior, we can well understand how congestion of the liver is produced mechanically by anything interfering with the flow of blood to the right heart. Under this head may be mentioned valvular disease, especially that of the mitral valve, pulmonary disease or compression of the upper part of the vena cava. In fact, sluggish, hepatic circulation may be one of the first symptoms of a failing heart. Owing to the damming back of the blood, the liver is enlarged, assumes a much darker color and generally there is jaundice; the latter is probably due to compression of the smaller bile ducts, the bile at the same time becoming thicker does not so easily flow in the ducts.

The center of the lobule is of a deep red color and the capillaries engorged with blood; external to this in the intermediate zone there is a brownish-yellow color, due to bile staining, while the peripheral zone is pale and fatty looking, the fatty degeneration being due to poor circulation and deficient oxidation. This characteristic appearance of the lobule has given rise to the term "nutmeg liver," which so well describes it.

What might be almost called the opposite condition to the one just described is cirrhosis. Here, owing to the slow but sure extension and growth of connective tissue, there is really a contraction and induration of the liver. Among the primary causes are alcohol, overeating, a sedentary life and the gouty diathesis. As to secondary causes, they are syphilis, malaria, tuberculosis and bacteria entering the portal circulation from the intestines.

The common or coarse cirrhosis is recognized as that in which the growth of connective tissue accompanies the medium-sized and finer branches of the portal vein. This form is constantly associated with ascites, when the abdominal cavity may contain from two to four gallons of fluid.

In some of the very chronic cases, the blood finds a short route from the portal vein to the vena cava inferior. The short circuit may take place by anastomosis—first, through the enlarged gastric and œsophageal veins; second, the veins of the round ligament; third, veins of the suspensory ligament; fourth, the inferior hæmorrhoidal veins; fifth, the veins of Retzius.

In cirrhosis, it happens that the irritant is conveyed by means of the hepatic artery, in which case the microscopic changes show a much finer cirrhosis than the former. Finally, a form of biliary cirrhosis is recognized, in which the liver, while indurated, is not smaller, but somewhat larger than normal, due to congestion and retention of bile. Here, owing to the irritant being conveyed by the bile ducts, the connective tissue overgrowth accompanies them, leading to compression of the liver cells, and in the course of time, by means of pressure atrophy, their death. The liver shows on a cut surface an intensely yellowish-green color, due to bile staining. Jaundice is characteristic of this condition, and shows great persistence and stubbornness.

Under the head of degenerations might be mentioned the most common—the fatty form. As to the cause, they are anæmia, the result of infectious diseases or of intoxicants. This is a chemical process taking place in the cell itself, which at once distinguishes it from fatty infiltration when the fat is brought from a distance and is deposited in or infiltrates the cells. The cells of the outer or peripheral zone first show large deposits of fat, which, after a time, break up into a fine, granular detritus, which, by absorption, leads to an actual diminution of the size of the organ.

Amyloid degeneration is a deposit of lardacein in the central or intermediate zone of the lobule. It occurs as a consequence of syphilis, tuberculosis, long standing suppurations or cachexia. It begins in the walls of the smallest arterioles and capillary branches of the hepatic artery, which present a thickened and translucent appearance. As the swelling increases, the liver cells are affected by the pressure, and this is manifested by atrophy and fatty degeneration. At times, in advanced cases, the veins show the same changes. The liver cells are only secondarily affected.

As to tumors of the liver, angioma is most frequently met with in the human subject, but in cats' livers it is of common occurrence. Carcinomas are generally secondary to primary tumors occurring in the breast, alimentary canal or uterus.

The pathology of the formation of gall stones is at present imperfectly understood. Advanced years, the female sex, sedentary life and high living are all factors of importance. Inflammatory conditions, with obstructions to the outflow of bile, desquamation of epithelium and bacterial decomposition of bile seem to be among the causes.

Gall stones may be single or multiple, the gall bladder occasionally containing several hundred. They vary in size from minute granular particles to calculi several centimeters in diameter. Biliary sand is composed of bile pigments with calcium salts; the larger stones have a mucous or epithelial nucleus, mixed with inspissated bile, surrounded by a crystalline structure composed of cholesterine. Gall stones may lie in the bladder or ducts for a long time without giving trouble, or attacks of biliary colic may denote their passage. They may give rise to the obstruction of any of the ducts (dilatation and inflammation) or cause enlargement or cirrhosis of the liver. Ulceration into the abdominal cavity or some viscera with delivery of the stone occasionally occurs.

GAILLARD'S MEDICAL JOURNAL.

A MONTHLY JOURNAL OF MEDICINE AND SURGERY

Scientia et Veritas Sine Timore.

PUBLISHED BY THE NEW YORK MEDICAL PUBLISHING CO.,
220 Broadway, NEW YORK.

All communications, of either business or editorial character, should be addressed to Gaillard's Medical Journal, 220 Broadway, New York.

Articles for publication will be received with the understanding that they are contributed exclusively to this journal. Reprints will be furnished at actual cost, orders for which should accompany the manuscript. Authors of accepted articles may receive twelve copies of the issue in which they are published. Necessary illustrations will be furnished without expense to authors when suitable drawings or photographs are furnished.

EDITORIAL.

It has happened more or less often that we, as practicing physicians, have met with cases of infectious diseases in which no source of contagion could be traced. When these cases occur in well-to-do families, and more especially in those families who are very particular in regard to exposure to any sort of infection, the question naturally arises, how do these cases of unknown infection arise or what can cause them? Often the attending physician taxes his ingenuity to the utmost to try to explain this seemingly complicated source of disease infection. We have in mind several cases of diphtheria that have recently occurred in families that are well-to-do and who were very zealous in trying to guard against any possible source of infection and have never been exposed to any previous case of diphtheria that could be traced. One of these cases in particular had been confined to the house by a surgical operation for some weeks previous to the outbreak of the disease, but yet, notwithstanding these things, in the second case a typical case of diphtheria developed and large amounts of false membrane occurred over the tonsils and pillars of the fauces. We have mentioned before, no source of infection could be found, no exposure to any known source could be traced, and no explanation could be made, but yet here were two cases of diphtheria occurring and no explanation could be given for their occurrence.

When we come to analyze the different foci of infection of the infectious diseases we naturally have to look a little beyond the fact of these people coming in contact with previous cases of known diphtheria and reach after a cause further back. Within the past year we published another article on this same subject, but in that case it was easy to trace the source of infection, and in that article we called attention to the fact that the health officer of the city often discovered cases of scarlet fever and diphtheria in the tenement house sweat shops, where many of our clothes are made. In connection with this we might cite the fact that recently a gentleman who was formerly connected with the Health Department of one of our eastern cities, in conversation on this subject, told the writer that he had, on more than one occasion, while making inspections of these sweat-shops, where all manner of clothing is made and sent to our tailors and retail stores, discovered cases of diphtheria and scarlet fever that had not been reported to the Health Department, and in some instances the sick children were found reclining on the clothes that were waiting to be finished. It is needless to say that in these cases prompt quarantine was established and proper disinfection carried out, but it is to those cases of infectious diseases that are not reported that we wish more particularly to call attention to. When we remember the tenaciousness with which the diphtheria bacilli and the smallpox and scarlet fever contagia holds on to these fabrics, it is no wonder that we often hear of the so-called sporadic cases of this disease occurring in places where no previous diseases had been for many years. The explanation is easy; infected clothing from the sweat-shops was packed up and shipped to a distant part of the country, and found its way into families of children, and disease was the result. Just so we have to look for an explanation in those seemingly hidden sources of infection occurring here in the city. The poorer class of people who carry on this tailoring work care nothing for cleanliness, much less for disinfection. They will not employ physicians, consequently the cases go unreported and no disinfection is carried out.

Not long ago we called attention in these columns to the back-yard carpet shaking, to the dusty street sweeping, the moving of infected household things through our streets, and more particularly to families moving into infected houses. If the health officer was given more money, so that more help could be procured and more disinfection carried out we would have far fewer sources of infection.

Our health officer should be given a corps of men who would regularly and systematically inspect these sweat-shops where clothing is manufactured, and the failure of any one of these manufacturers to report a case of sickness should be tantamount to a heavy fine. If the health officer was clothed with more authority, given better means by which these things could be carried out, we are confident that there would be far fewer cases of infectious diseases; we would live in more security from danger from these sources. The prevention of disease is more often better than the cure of it.

There is a class of cases becoming quite common to the general practitioner, and can be grouped under the following: Symptoms—Malaise, headache and a feeling of weakness on arising in the morning, impaired appetite, faulty digestion, easily fatigued, vague pains in the limbs and back, and to many of our business men, want of concentration of mind to their work, nervousness, broken sleep at night, easily worried, mental inability to carry out their accustomed duties. The finer instruments of precision fail to reveal any symptoms. The heart beats are normal in time, but a little weak, the temperature is slightly above normal, the reflexes are normal, and when we come to inquire into the habits of these persons we find that they eat their meals hurriedly, they are large consumers of tea, wine or beer, are largely addicted to smoking, they fail to answer the calls of nature regularly, they have a slightly coated tongue. What is the cause of all this? The food being improperly masticated, the gastric juice being largely diluted by means of the fluids drank, the gastric mucous membrane being strongly congested by the large amount of ice water, ice cream and soda water consumed, is kept in a chronic state of congestion, and the digestive functions are thus crippled and the food is undigested, fermentation and decomposition follow, resulting in the absorption of toxins and leukomains, and these circulating in the blood are brought into contact with the tissues and nerve centers.

It is an old saying, but a very true one, that "many a person is digging his grave with his teeth." Their eating hastily and their indulgence in these iced beverages are largely responsible for the cause of the cases to which we have called attention.

Not much has been written on this subject, it being considered too trivial for interest, but yet it is one of the most common affections the physician is called upon to treat. Patent medicine men and quack doctors have learned this fact far in advance of the regular practitioner, and have made much capital and out of their advertising all manner of cures for these conditions. It behooves us as medical men to pay more attention to the slight ailments than we have heretofore. Many years ago Dr. Beal, of London, published a book on "Slight Ailments," and in that book are many rules and directions for treating just such cases as we have called attention to, but any physician who will have carried out by his patients the ordinary rules for eating and drinking can do much toward the alleviation of these sufferers.

But back of all this there is a nervous element which enters into all these cases. Perhaps that element is some hereditary vice of constitution or it may have been engendered by our rapid way of living, or by our noisy surroundings, or by reading exciting literature. Certain it is these cases are much more common in our large cities than in the quiet country. Without doubt the prime trouble is the absorption of the above mentioned toxins and leucomains, and these are the substances which do the damage. Medicines are only temporarily useful; they do not cure the cases. One of the first things to do is to regulate the intake of food. Bauchard, in his work on "Autoinfection," shows us what very poisonous materials are carried off in the urine. It behooves us as medical men to have our patients carefully guard against all the causes which go to cause all this trouble.

We notice in the daily newspaper that very frequently cases of smallpox are still being found in various parts of this large city. Where they come from and how they are infected are questions not easily answered. In many instances the sufferers are young children, and these children are supposed to have been around close to their homes and not wandering off in infected smallpox areas. The question then arises how the sickness originated and where did it come from? Certain it is that it must have been brought to the children. Who brought it and by what means was it infected? Probably a newspaper or a letter sent from some infected family at a distance is the important factor; but one thing is apparent, that we are not as a community thoroughly protected against smallpox by vaccination. Vaccination should be compulsory in all cases, and failure to comply with the order should be tantamount to a stay in jail until complied with. Vaccination should be systematically carried out every five or six years, and every child should be vaccinated, willingly or unwillingly, shortly after birth, and no person should be allowed to reside in this city unless they could furnish the health officer with facts of previous successful vaccination.

Society Proceedings.

TWENTY-SIXTH ANNUAL MEETING OF THE AMERICAN ACADEMY OF MEDICINE.

(St. Paul, Minn., June 1 and 3, 1901.)

A registration of thirty and an addition of forty-eight members represents the cold facts concerning the twenty-sixth annual meeting of the American Academy of Medicine.

It thus begins its first year and second quarter of a century under auspicious circumstances. The simple tabulation of statistics, however, does not give the true value of the meeting. The subjects under discussion consisted, first, of a symposium on "Reciprocity in Medical Licensure," in which the trend of thought seemed to be away from pure reciprocity toward a conditional examination of those men moving from one State to another who had already acquired a license to practice by an examination before a State board. It was thought on the one hand, that it would be almost impossible to so synchronize the movements of the various State boards of medical examiners as to make the examinations practically equivalent; and, on the other hand, that certain fitness to practice shown by those who had already been in practice should be accepted in lieu of an examination upon the primary subjects, while certain other tests should be applied which could easily be met by any one engaged in active practice if he were at all fit to receive a license.

The other symposium was entitled "Institutionalism," but papers rather treated of the abuses. They were all suggestive, and will form an interesting contribution to the subject. Special mention should be made of a paper by Dr. Hill, of Iowa, upon the present method of supervising institutions of that State, whereby a commission of three, giving their whole time and receiving a salary from the State, supervise the management of all the institutions for the defectives. It removes the oversight of these institutions from politics, and is working very well.

Another paper, by Dr. H. Bert Ellis, of Los Angeles, describes a hospital in that city owned and controlled by medical men for profit, not philanthrophy, which serves as a fair investment for the money, and is a great convenience to the profession in that city.

In addition to the papers connected with these symposia were several papers of general interest, Dr. Cattell, of Philadelphia, giving the details of the executive management of the clinical laboratories in connection with hospitals; Dr. T. D. Davis, of Pittsburg, a valuable paper on the necessity of culture studies for medical students; a paper by Dr. P. Maxwell Foshay, of Cleveland, upon his new method of determining the value of professional services, recently outlined in the *Cleveland Journal of Medicine*, and another, by Dr. James A. Spalding, of Portland, Me., giving the personal experience of an ophthalmologist suffering from a sudden loss of vision and consulting first the optician and then the oculist for aid, showing the inefficiency of the former and the great help which the latter gave him.

The meeting concluded with the usual very enjoyable social session, after electing Prof. V. C. Vaughan, of the University of Michigan, president.

THE ASSOCIATION OF AMERICAN MEDICAL EDITORS.

The annual meeting of the Editors' Association was held at St. Paul, June 3-5, 1901, the sessions being convened in the library hall of the Ramsey County Medical Society. This was the most successful meeting held for fifteen years, both from point of attendance and the high standard of excellence of the papers presented. Of especial moment was the paper presented by Dr. Burnside Foster, of St. Paul, entitled "Some Thoughts on the Ethics of Medical Journalism," which was discussed by Drs. Lancaster, Gould, Love, and others. At the instance of Dr. Foster, a committee consisting of Dr. Simmons, editor of the *Journal of the A. M. A.*; Dr. Gould, of *American Medicine*, and Dr. Foster, of the *St. Paul Medical Journal*, was appointed to amend the constitution and by-laws of the association by adding certain rules concerning the nature of the advertising which is to be admitted to the pages of the journals in affiliation with the association. These rules are to be binding on all members, the committee also being advised to suggest such revision of the constitution and by-laws as may be deemed advisable.

Among other papers read were those of Dr. John Punton, entitled "The Relative Value of Medical Advertising;" that of Dr. Dudley S. Reynolds, entitled "Improvements in Medical Education;" Dr. Harold N. Moyer, "Relation of the Medical Editor to Original Articles."

The association adopted resolutions favoring the establishment of a psycho-physiological laboratory in the Department of the Interior at Washington, D. C. It also appointed a committee to draft a resolution requesting the board of directors of the Louisiana Purchase Exposition Co., in charge of the St. Louis World's Fair, to recognize and commemorate in a suitable manner the great work done in medicine and surgery. *The American Medical Journalist* was selected as the official journal for publication of papers and proceedings.

The annual dinner of the association was held at the Metropolitan Hotel on the evening of June 3, President Stone acting as toastmaster. The speakers of the evening were Drs. Love, Stone, Moyer, Matthews, Marcy, Fassett, Hall. They confined their remarks to subjects of interest to medical editors, and contributed not a little towards the scientific features of the meeting.

At the session of June 5 the officers for the ensuing year were elected, as follows: President, Dr. Alex. J. Stone, of St. Paul; vice-president, Dr. Burnside Foster, of St. Paul; secretary and treasurer, Dr. O. F. Ball, of St. Louis.

The executive committee appointed for the ensuing year consisted of Drs. Gould, Matthews, Lillie, Fassett, Marcy.

The next meeting will be held at Saratoga Springs, N. Y., in June, 1902.

Book Reviews.

HARRINGTON'S PRACTICAL HYGIENE. For Students and Practitioners of Medicine and Medical Officers. By Charles Harrington, M.D., Assistant Professor of Hygiene in Harvard Medical School, Boston. In one very handsome octavo volume of 718 pages, with 105 engravings and 12 full-page plates in colors and monochrome. Cloth, $4.25 net. Lea Brothers & Co., publishers, Philadelphia and New York, 1901.

This work fills a need long felt by the physician. In former times it was necessary to consult different works on special subjects of hygiene, and to rely often on the published reports of health officers, but now, with this excellent volume, all this is obviated. The author has certainly expended a great amount of labor and care in collecting and arranging the vast amount of data. No physician should be without this work, for it treats of many subjects which are not touched on in our medical schools and medical journals.

We have gone over this work carefully, and are agreeably impressed with its style, completeness and arrangement. Particularly would we call attention to the excellently written sections on plumbing, disinfection and ventilation. These are vital matters with which the practicing physician is often called on to decide or to recommend improvements in. The subsection on the use of formaldehyde gas is all that can be desired, embodying, as it does, all the latest research in this important direction.

The work is divided into seventeen chapters, arranged as follows: Chapter 1, Foods; Chapter 2, Air; Chapter 3, The Soil; Chapter 4, Water; Chapter 5, Habitations, Schools, etc.; Chapter 6, Disposal of Sewage; Chapter 7, Disposal of Garbage; Chapter 8, Disinfectants and Disinfection; Chapter 9, Quarantine, Chapter 10, Military Hygiene; Chapter 11, Naval and Marine Hygiene; Chapter 12, Tropical Hygiene; Chapter 13, Hygiene of Occupation; Chapter 14, Vital Statistics; Chapter 15, Personal Hygiene; Chapter 16, Vaccination; Chapter 17, Disposal of the Dead.

ESSENTIALS OF THE DISEASES OF CHILDREN. By William M. Powell, M.D. Third edition, thoroughly revised by Alfred Hand, Jr., M.D., Dispensary Physician and Pathologist to the Children's Hospital, Philadelphia. 12mo., 259 pages. Philadelphia and London: W. B. Saunders & Co. Price, $1.00 net.

In this revised edition numerous additions and changes have been made in the book, so that it continues to represent the present state of pediatrics. The book aims to furnish material with which students may lay the foundation for the successful practice of medicine among children. The section on Infectious Diseases has been rewritten, as well as many of the paragraphs on pathology. A number of new chapters have been added, among others, one on Infant Feeding.

ATLAS AND EPITOME OF THE NERVOUS SYSTEM AND ITS DISEASES. By Prof. Dr. Chr. Jakob, of Erlangen. From the second revised German edition. Edited by Edward D. Fisher, M.D., Professor of Diseases of the Nervous System, University and Bellevue Medical College, New York. With 83 plates and copious text. Philadelphia and London: W. B. Saunders & Co., 1901. Cloth, $3.50 net.

In this Atlas the author has portrayed an instructive section of medicine, which is usually extremely difficult of mastery by students and practitioners. This work will be of great value to the physician. The matter is divided into Anatomy, Pathology and Description of Diseases of the Nervous System. The plates illustrate these divisions most completely. There is probably no work in existence in which so much is compressed within so small a space. The book is comprehensive and practical.

ATLAS AND EPITOME OF OBSTETRIC DIAGNOSIS AND TREATMENT. By Dr. O. Shaeffer, of Heidelberg. From the second revised German edition. Edited by J. Clifton Edgar, M.D., Professor of Obstetrics and Clinical Midwifery, Cornell University Medical School. With 122 colored figures on 56 plates, 38 other illustrations and 317 pages of text. Philadelphia and London: W. B. Saunders & Co., 1901. Cloth, $3.00 net.

This book treats particularly of obstetric operations, and besides the wealth of beautiful lithographic illustrations, contains an extensive text of great value. The symptomatology and diagnosis are discussed with all necessary fulness, and the indications for treatment are definite and complete. In this new edition both text and illustrations have been subjected to a thorough revision. Most of the colored plates are new, and illustrate the modern improvements in technique as well as a vast amount of new clinical material.

HYDE ON THE SKIN.—New (6th) Edition. A Practical Treatise on Diseases of the Skin, for the use of Students and Practitioners. By James Nevins Hyde, A.M., M.D., Professor of Dermatology and Venereal Diseases in Rush Medical College, Chicago. New (6th) edition. In one octavo volume of 832 pages, with 107 engravings and 27 full-page plates, 9 of which are colored. Cloth, $4.50 net; leather, $5.50 net; half morocco, $6.00 net. Lea Brothers & Co., Philadelphia and New York, 1901.

The subject of diagnosis and treatment of the diseases of the skin has always been a source of worry and uncertainty to the general practitioner. In the above named work the author has made plain the description and simple the treatment of all these affections. The illustrations are excellent, and we do not believe they can be excelled. We know of no recent work on this subject that is so good as Dr. Hyde has written. He is a well-known author and teacher, and these in themselves bespeak a largely increased sale for this new edition. Everything is up to date, and nothing is left to be desired.

GAILLARD'S MEDICAL JOURNAL.

VOL. LXXV. NEW YORK, AUGUST, 1901. No. 2.

THE TIMELY DIAGNOSIS OF SURGICAL TUBERCULOSIS.

By DANIEL N. EISENDRATH, M.D.,
Professor Clinical Anatomy, Medical Department University of Illinois.

"The Timely Diagnosis of Surgical Tuberculosis," covers such a vast field that it will not be possible for me in this paper to do more than to refer briefly to the various forms of this formidable disease which shows itself in other portions of the body than those which we are accustomed to ascribe to the domain of internal medicine.

Surgical tubercular affections are seldom, if ever, primary. In the majority of cases there is some previous seat of disease elsewhere, as, for example, Koenig has pointed out, in the cases of tuberculosis of the bones and joints, to which I shall refer later, in only forty per cent. of the cases is the disease primary; in over sixty per cent. foci are present in the lungs, glands, and other organs. This factor must also be thought of in considering longevity, because the healing of the secondary focus does not necessarily imply the healing of the primary. The latter may remain latent for a number of years, and then suddenly the process becomes active, often shortening life by a considerable period.

In taking up the manifestations of surgical tuberculosis in the various organs, I can of course only briefly refer to the diagnosis and prognosis. As I have said before, the insurance examiner is not expected to be a diagnostician alone; but yet there are so many cases in which surgical tuberculosis must be diagnosed, that it will be of interest to take the organs up somewhat individually. I shall begin with the tubercular involvement of the lymph glands.

The term scrofula was formerly applied to an enlargement of the cervical lymph glands, and it and tuberculosis were regarded as separate diseases. We now know that the majority of these cases are tubercular, and have abandoned the former term. The lymph glands are amongst the most susceptible tissues of the body to tuberculosis; next is the spleen, lung, and the liver. Tubercle bacilli can remain virulent for years in glands without causing enlargement or symptoms, probably owing to the fact that the number of bacilli is too small. If the general nutrition is lowered, the few that are present have the opportunity to increase and the process may become quite active. Hereditary or acquired predisposition play but a slight role, especially in lymphatic tuberculosis.

With regard to age, it is most frequent between the ages of ten to twenty; in fact, seventy per cent. of the cases occur between ten and thirty. The cervical lymph glands are affected in ninety per cent. of the cases because the primary process is most frequent in the eyelids, the nose, and mouth.

Hyperplastic glands, which remain for years palpable in the neck, are almost invariably tubercular. Caries of the teeth is one of the most frequent causes, or, we might say more properly, infection atrium for tuberculosis of the cervical lymph glands. The tonsils are also a frequent cause. The reason why tuberculosis is so frequent in the young is sometimes explained by the fact that chilidren in crawling on the floor inhale pulverized tubercular sputum.

With reference to the significance of enlarged tubercular glands of the neck, the simple hyperplastic kind may remain perfectly normal; but in many of the cases pulmonary tuberculosis develops later, the percentage from a large number of statistics varying from ten to twenty-seven per cent. Prelat observed cases in which the glands enlarged one-half to one year prior to the development of the pulmonary tuberculosis. In 160 cases observed in Heidelberg, twenty-six per cent. developed pulmonary tuberculosis, and fourteen tuberculosis elsewhere. Volland found in a large number of children examined in the Swiss schools that between the ages of seven and nine years 96.6 per cent. of the glandular enlargements were tubercular; between the ages of ten and twelve, 91.6 per cent.

The bacilli in these cases of pulmonary tuberculosis are in all probability carried by the leucocytes' to the lungs, becoming agglutinated to the capillary wall in the apex, especially if there is a coincident anemia. This is the indirect mode of infection. The direct mode of infection is that the leucocyte wanders through the lymph spaces into the pleural cavity, and then by an adhesive pleuritis attacks the lungs. The inhalation theory of tuberculosis has no longer as firm a foundation as it formerly had.

Two-thirds of all persons carry tubercle bacilli latent in the lymph glands through life. An isolated gland gives a better prognosis than a diffuse and multiple enlargement. In children the prognosis is bad; later on it becomes better. Hereditary predisposition makes the prognosis worse. According to Von Bergmann, every tubercular gland, every encapsulated tubercular focus is a menace.

The differential diagnosis must be made from

Syphilis.
Hodgkins Disease.
Pseudo Leukamia.
Simple Inflammatory Enlargement.
Supperative Enlargement.
Malignant Lymphadenitis.

The peritoneum is especially susceptible to tubercular infection, particularly in the female sex, due undoubtedly to the primary disease being in the Fallopian tubes or uterus. The forms in which it occurs are tubercular ascites, either encapsulated or diffuse, and fibrinoplastic peritonitis. In the first named, we have the ordinary evidences of a free fluid in the peritoneal cavity in the absence of the ordinary causes of ascites. There is not infrequently more or less elevation of temperature, and some tenderness; in fact, the temperature may sometimes completely resemble that of typhoid fever, as in one case which I saw, which was treated as a typhoid for several weeks before a correct diagnosis was made. Such cases, with a slow onset, abdominal tenderness, low continued fever resemble typhoid very closely. Other cases set in acutely with fever, abdominal tenderness, and the symptoms of an ordinary acute peritonitis. A striking peculiarity of tubercular peritonitis is the frequency with which it is mistaken for a tumor, due to the fact, (1st) that the omentum is frequently puckered up in this form of the disease; 2d, to an encapsulated exudate, the latter especially frequently being mistaken for ovarian tumor, and, 3d, by the great thickening of the intestinal coils. The enlarged mesenteric glands, which so frequently occur with peritoneal tuberculosis, may form quite large tumors.

Primary intestinal tuberculosis arises most frequently from infected ingesta. This is the form which occurs especially in nursing infants and young children, because it is well known that their intestinal tract is much less resistant than that of adults, and also on account of the fact that their nutrition is almost exclusively milk. Undoubted cases of primary intestinal tuberculosis have been described in adults by Girode, Ronseff, Hermsdorf, Zahn, Wyss, and Melchior. In general, however, the majority of cases of intestinal tuberculosis in adults and older children are secondary. To show the frequency of intestinal tuberculosis as a secondary infection, Eisenhardt found it 566 times in a thousand post-mortems of phthisical patients. According to some authors the proportion is even larger. If the pulmonary tuberculosis improves, the intestinal form does so in direct ratio.

In regard to the location of intestinal tuberculosis it does not equally affect all portions of the alimentary canal. A favorite place is the lowermost portion of the ileum and the cecum which, according to some authors, is affected in eighty-five per cent. of the cases. In the esophagus and stomach it is rare, although it has been observed. The reason for its occurrence in the cecum is possibly on account of the stagnation of the fecal matter at this place, and also from the fact that the circulation, both vascular and lymphatic, favors its development here. The terminations of this form of tuberculosis may be either in recovery, with or without the formation of strictures, in perforation, in general infection, and death. Of chief interest from a surgical standpoint are the strictures. Perforation occurs in about five per cent. of the cases.

In regard to the symptoms of intestinal tuberculosis, they are at first those of a simple catarrhal enteritis. In extensive disease the stools have a peculiar brownish-black color due to the admixture of blood. Diarrhea is the most prominent symptom. The number of bowel movements varies from one to many, but always of very thin consistency. Constipation is very rare, but at times diarrhea and constipation may alternate. There is seldom any spontaneous pain, but most frequently there is pain on movement of the bowels. If the pain is localized in the ileo-cecal region, there is frequently a tumor present, to which Durante and Billroth first called attention, and which has sometimes been taken for malignant growths. It has been maintained by some that many of the cases of carcinoma and lympho-sarcoma of the cecum have in reality been cases of tuberculosis.

In regard to the sex, Conrath in eighty-five cases found it thirty-six times in men, and forty-one times in women. As to age, over fifty per cent. were between twenty and forty years.

The symptomatology of this form of localized tuberculosis is quite different from that of intestinal tuberculosis in general. There may at first be no symptoms; in fact, no abnormal phenomena from the alimentary tract in some cases. In others there may be dyspeptic symptoms; at times, an uncomfortable feeling in the ileo-cecal region. There is not the uncontrollable diarrhea of phthisical patients, but a constant change between constipation and diarrhea. They are quite characteristic colicky pains, accompanied at times with visible peristalsis and borborygmi. In the interval many cases have absolutely no pain; others have diffused pains in the abdomen, or in some the pain may be confined to the ileo-cecal tumor, the formation of an abscess and an external fistula. The tumor itself may not be felt for some time after these indefinite symptoms have appeared, and it may be frequently noticed by the patient himself.

In regard to the duration, the tumor is usually observed one to two years before operation.

In regard to the diagnosis, in the majority of cases the tumor is situated in the ileo-cecal region; it is hard and nodular, and does not move with respiration. On percussion there is a dull tympanitic sound. Upon filling the colon with air or water the tumor is made more prominent. A differential diagnosis must be made from actinomycosis, intussusception, sarcoma, fecal tumors, appendiceal tumors and carcinoma.

These cases of localized tuberculosis should be absolutely refused as risks.

GENITO-URINARY TUBERCULOSIS.

The epididymis is more frequently than the testicle the seat of acute infective processes which prepare the soil for the bacillus of tuberculosis. This fact may to a certain extent explain the greater frequency with which primary tuberculosis occurs in the former than in the latter. Councilman believes that the most common seat of the primary disease in uro-genital tuberculosis is the epididymis. From this the disease extends along the vas deferens to the seminal vesicles or prostate. From the bladder the extension is in the direction opposite to the flow of secretion, with or without any involvement of the ureter. From this infection of the pelvis of the kidney and of the adjoining kidney tissue takes place. Senn states that in his clinical experience the primary starting point of uro-genital tuberculosis has been in the epididymis in fifty per cent. of the cases. Gonorrheal epididymitis is mentioned frequently as a precursor and often imparts to the tubercular process a very malignant type. Such a case is reported by Birch-Hirschfeld. A soldier twenty-four years of age, in perfect health, contracted gonorrhea which led to acute epididymitis, and in the course of eight days the patient died of miliary tuberculosis. Miliary tuberculosis was found in the peritoneum, pleura and other organs. The epididymis was transformed into a cheesy mass.

The disease presents itself clinically in the form of a caseous inflammation or ulcerative suppurative catarrh. It is a very insidious disease. It is often overlooked by the patient for a long time; it is frequently preceded by a slight urethral discharge; usually begins in the globus major of the epididymis as a hard, almost painless, swelling, and the patient's attention is frequently called to it by a complicating hydrocele. The absence of any well-marked symptoms during the incipiency of the disease is the reason why the cases come so rarely under the care of the surgeon at this time. Kocher regards as the most characteristic symptoms of tuberculosis of the testicle and epididymis rapid development of swelling, early softening of the inflammatory product, and the absence of acute subjective symptoms. Other authors, especially Senn, do not agree with this more rapid course of development, although cases of double galloping tuberculosis of the testicle have been described. The disease may remain limited to one testicle, or after months or years may make its appearance in the opposite organ. As a rule, the vas deferens is early affected, infection extending along its entire length in a short time. From the vas deferens the disease extends to the seminal vesicles; from here to the lateral lobes of the prostate.

In the differential diagnosis we must consider acute and chronic inflammations and syphilitic affections. In tuberculosis the swelling in the epididymis is usually larger than in other forms of inflammation. Tenderness and pain, conspicuous symptoms in gonorrheal epididymitis, are absent or slight in tuberculosis. Tubercular inflammation is characterized by periodical exacerbations. The diagnosis of tuberculosis of the bladder is exceedingly difficult. It most frequently appears in the form of chronic inflammation, which, in the absence of tangible evidence of infection from chronic obstruction, etc., should always lead to suspicion of the tubercular nature of the affection. The places where it most frequently commences are the ureteral orifices and the trigone of the bladder. Extension of the tubercular inflammation over the surface in the direction of the different coats of the walls of the bladder, is hastened in case the bladder becomes infected with pus microbes, which is so often the case.

In regard to the symptoms, they frequently resemble those of stone in the bladder. If tubercle bacilli can be found in the urine the diagnosis is of course positive, in the absence of evidences of uro-genital tuberculosis elsewhere. Amongst other symptoms are frequent desire to urinate, vesical tenesmus and occasionally slight hematuria. Later on incontinence of urine becomes a conspicuous clinical symptom. Morphologically, the latter contains all the evidence of chronic cystitis. Senn states that the pain is to be compared with the pain in cases of stone in the bladder. It may be stated that in tubercular disease of the bladder, pain is present before, during and after urination, but is not so much aggravated after emptying the bladder as in the case of stone. It is most acute about the middle of the act of urination, increasing toward the termination and subsiding slowly after the bladder is emptied. Tenesmus is also less severe than in vesical calculus. Pain at the end of the penis is also less constant and severe. Sudden stoppage of the flow of urine does not occur during urination. We must differentiate it from renal calculus, suppurative pyelitis, and tumors of the kidney and bladder. Hematuria is never as profuse as in tumor of the bladder and usually is not constant. Pus appears in great quantity, especially when caseation and ulceration set in. In the sediment tubercle bacilli may be found. Not infrequently a cystoscopic examination, if it is possible to be made, aids greatly in making the diagnosis. It is very difficult indeed to differentiate renal tuberculosis from vesical tuberculosis. The prognosis is always grave. Appropriate general and local treatment will prolong life. Cases in which permanent cures are effected are few.

Through a more refined means of diagnosis we are now able to make the diagnosis fairly early in cases of renal tuberculosis. Many authors maintain that the kidney is often the seat of primary tuberculosis; others that it is an ascending process, and that the kidneys are affected secondarily. The kidney may become infected by tubercle bacilli from the blood without demonstrable tuberculosis in any other part or organ of the body; secondly, from the blood as a secondary affection in pulmonary tuberculosis or other organ; thirdly, by continuity of surface and ascending tuberculosis of the genital organs. Roberts found it in 5.6 per cent. of 1,317 tubercular subjects which he examined out of a total of 6,000 bodies.

In regard to the etiology, antecedent inflammatory infections and trauma are the conditions which most frequently determine tubercular infection.

The symptoms of tuberculosis of the kidney are insidious in the onset, and none of them are pathognomonic. Often symptoms of chronic cystitis precede those of the kidney for a long time, and in the absence of a local cause for the supposed cystitis renal tuberculosis should always be suspected. In the ascending form the kidney affection is preceded by symptoms referable to the chronic inflammation of the lower portion of the urinary tract. In primary renal tuberculosis the extension from above downwards is, according to Senn, strong, if not positive, proof of the tubercular nature of the lesion. Pain is either slight or entirely absent unless there is obstruction of the ureter. There is usually more or less tenderness; vesical symptoms sometimes precede quite early the renal. There is always some rise of evening temperature, except in the advanced state, when there is more or less obstruction in the ureter if there is any swelling. Examination of the urine shows albumin, blood, pus, and debris. It rarely contains casts. Hematuria is seldom profuse, although several very interesting cases have been published lately of almost fatal hemorrhages as the first symptom of incipient tuberculosis of the kidney. One case is of sufficient interest to quote at some length.

A young lady, twenty-four years of age, whose mother had a cough and hemoptysis, and whose two brothers died of pulmonary disease, was suddenly seized with severe pain in the right kidney, severe headache, and lassitude, followed by hematuria. The urine then became clear and the symptoms were repeated in three days. The right kidney was palpable, but not enlarged or painful. Some catarrh of the apex of the lung; tubercle bacilli were found in the urine; the kidney was cut down upon and tuberculosis found. Bacteriological examination of the urinary sediment is of great diagnostic value, and the tubercle bacillus can often, but not always, be found in the urine. General symptoms, such as anorexia, marasmus, hectic fever, etc., may be present. Catheterization of the ureters is of the greatest value. The injection of tubercular urine into the subcutaneous tissues or peritoneal cavity of guinea pigs or rabbits causes typical tuberculosis.

The prognosis in tuberculosis of the kidneys is extremely grave owing to the progressive nature of the disease and the frequency with which it is bilateral.

Tuberculosis of the bones and joints is seldom primary; that is to say, in about sixty per cent. of the cases foci are found in other organs of the body, of which the lung comes first, with twenty-five per cent., other bones ten per cent., lymphatic glands ten per cent., peritoneum three per cent., and pleura two per cent. Trauma is a marked predisposing cause. The exciting cause, of course, is the tubercle bacillus. Pain is almost a constant symptom, but may vary greatly in intensity. Frequently it is more severe during the night. It may be referred to the affected bone or joint, or to some other points, as, for example, the in hip disease to the knee. There is usually more or less tenderness; not infrequently swelling; interference with the function of the joint, and evidences of an intra-articular effusion. The primary focus is more frequent in children in the bone; in adults, in the joint. Many neglected cases of joint tuberculosis die of pulmonary or general tuberculosis. Koenig, from a table of 117 operations for tuberculosis, found, after four years, sixteen per cent. had died from general tuberculosis. Every person who has suffered from an attack of osteal or joint tuberculosis during childhood or youth, even if an apparent cure has been effected spontaneously or by operative measures, is always in danger of becoming the subject or reinfection from the primary or osteal focus at any subsequent period. The prognosis is more grave in persons advanced in years than in children on account of the rapidity with which the diseases spread in adults.

According to the statistics of some authors the vertebræ are most frequently affected; next in order the knee and foot, hip, hand, elbow, etc.

The prognosis of tubercular arthritis depends upon the treatment instituted and upon the degree of local disease. In general it is more favorable if in a bone than if in a joint or internal organ. Billroth stated that twenty-seven per cent. of those who had joint tuberculosis died within sixteen years of pulmonary disease.

It is hardly necessary for me to refer to tuberculosis of the tendon sheaths further than to say that it is regarded in as serious a light for insurance purposes, especially on account of the danger of future pulmonary or general tuberculosis, as previous joint or bone disease.

Tuberculosis of the skin occurs in the form of lupus, which is now universally accepted as a tubercular affection, and in the form of tuberculosis verrucosa cutis lupusis, most frequent in middle-aged persons; it attacks the nose, eyelids, cheeks and hands. In this form the small, red vascular nodules may or may not ulcerate. In the other form of skin tuberculosis there is a marked tendency to ulceration, with the formation of wart-like projections, giving quite a characteristic clinical picture. There is also an inoculation form, the anatomical tubercle incurred in dissection operations, etc. All of these forms of cutaneous disease have only slight effect on longevity, although the possibility of adjacent lymph gland and later general infection must not be forgotten in considering the possible duration of life.

There are two forms of tuberculosis of the rectum. There is a form of ulceration in the tubercular subject which attacks the tissues in and about the rectum, manifesting no evidences on the outside. I had occasion to see such a case not long since in a man, about thirty-five years of age. He discharged some mucus each day, which was accompanied by a good deal of tenesmus, and, at times, blood. Examination of the rectum showed ulceration just above the sphincter muscle, oval in shape, having all the peculiar characteristics of a tubercular ulcer. It must be differentiated from syphilitic and gonorrheal ulcerations.

Another form of tubercular disease of the rectum is the chronic fistula-in-ano. Among the old authors the idea was prevalent that a discharge from this fistula in phthisical patients had a modifying influence on the disease. Consumptives are frequently the subject of fistula. But there are many cases in which tubercular fistula often precedes by a considerable length of time a demonstrable pulmonary disease. In any person in whom we have a long-standing fistula-in-ano, and microscopical examination of the tissue confirms the suspicion of a tuberculosis, the prognosis must be exceedingly guarded, owing to the fact that it is often only a forerunner of the pulmonary condition. The ordinary fistula as the result of the rupture of an acute periproctitic abscess is not tubercular, and patients who have been operated upon three to five years before an insurance examination with such a history may be regarded as safe risks. Where, however, a fistula has existed for years without any preceding acute symptoms the subject is to be regarded with suspicion. Tuberculosis of the eye shows itself in the form of an iritis which often necessitates enucleation.

THE PROGNOSIS OF VARIOUS TYPES OF ALBUMINURIA.

By TALBOT JONES, M.D., of St. Paul, Minn.
Visiting Physician to the City and County, St. Luke's and Bethesda Hospitals, etc.

Transudation from the glomercular tuft of the healthy kidney is no mere filtration, since its epithelial covering exercises a selective function and inhibits the passage of albumin into the urine while freely allowing water and mineral salts to pass; hence albuminuria must be explained by lesions or functional disorders of the glomeruli tuft or of its epithelial covering, and this view fits in with clinical experience and is more or less applicable to the great number of conditions under which albuminuria arises. So far as one is able to judge, the trend of opinion is toward the view expressed by Professor Croq, of Brussels, before the French Congress of Internal Medicine in 1896, which is as follows: "I am inclined to think that the starting point of albuminuria is the same in all cases, viz.: desquamation of the epithelium. Physiological albuminuria is therefore an impossibility; but the condition may be ephemeral if the lesion itself is transient, the desquamated epithelium being completely regenerated."

The names of Kleugden, Senator and Postner are identified with the view that albumin enters into the composition of normal urine, but the vast majority of physicians and chemists unhesitatingly reject it because no facts have yet been adduced to show that a kidney which remains normal lets abnormal albumin pass. Until this has been done, albuminuria must be considered a suspicious phenomenon which in any event points to a defective renal function. It has recently been shown by Arnozan that all inflamed epithelia without exception exude greater or less quantities of albumin. The kidney, therefore, in adding albumin to its secretions merely imitates the example of other inflamed organs.

From this point of view, we may regard albumin in the urine in many cases as simply an inflammatory product. In lesions which are degenerative rather than inflammatory (contracted kidney, etc.), albumin is only present as a subsidiary phenomenon or does not exist.

Before proceeding to describe specific forms or types of albuminuria, and the prognosis attaching to each, much light may be thrown on the subject of albuminuria in general, by briefly considering the composition of the urine, and the general state of the patient.

The prognosis based on the quantity of albumin found in a given specimen of urine may lead to erroneous conclusions, for, while a large quantity is rightly regarded as of serious import, the opposite is far from being true.

A large amount of albumin permanently persisting in a polyuria of from 32 to 70 ounces, the specific gravity of which is low, is of grave import, as it usually denotes a rapidly progressing red atrophy or a white lardaceous kidney.

When on pouring nitric acid into a conical glass containing albuminous urine, a distinct and thick layer of uric acid is seen to form on top of the layer of albumin, it may be confidently asserted that the albuminuria is of a comparatively mild character. This feature in fact is not observed except in albuminuria associated with febrile or cardiac affections or as a premonitory symptom of gout. In other cases, nitric acid gives a thick precipitate of a dull white color on top of a purple disk, more or less marked, of indican, the purple tint rapidly becoming diffused in the direction of the albuminous precipitate, while the latter contracts into a large clot, the whole mass assuming a purplish color; in the presence of this phenomenon, it may be concluded at once that the prognosis is grave. If the layer of albumin is thin, and a pink disk or circle of urohematin exists beneath it, the prognosis is variable, for this precipitate is met with in the albuminuria of contracted kidney, as well as in the albuminuria of anemia and neuropathic adolescents (Talamon). Every specimen of urine which contains much albumin, and which at the same time is pale, of low specific gravity, which is deficient in coloring matters and mineral elements, invariably indicates an advanced chronic nephritis and admits of only the gloomiest prognosis. On the other hand, a high colored urine, normal or subnormal in quantity, which contains a small amount of albumin, whose specific gravity is from 1016 to 1026, and which is rich in uric acid and urea, usually but not invariably admits of a favorable immediate prognosis.

A persistently low specific gravity of the urine and a deposit of granular, epithelial, or fatty casts are positive signs of organic kidney mischief. The long persistence of an albuminuria is of grave omen.

The prognosis of albuminuria of animal or meat eaters is decidedly more favorable than that of the vegetarian.

The variations in the amount of water in the urine occupy the first rank in respect to prognosis. It is indeed of much greater importance to know the quantity of urine passed in twenty-four hours, than the proportions of albumin which this urine contains. In every case of chronic albuminuria, diminution in the amount of urine is an unfavorable sign: persistent oliguria points to the imminence of uremic symptoms. In acute nephritis, the gravity of the prognosis is directly proportional to the degree of oliguria (Talamon).

Does the amount of urea secreted per day by the kidney furnish any deductions of practical value with respect to prognosis in a given case of albuminuria? In those cases where the total quantity of urine is small (a tendency toward suppression), the prognosis is more favorable, and the nervous storms of the patient are less pronounced, where large intead of small amounts of urea are excreted. Physicians have also learned to look with complacence on those cases of albuminuria, from whatever cause, where the total amount of urine passed per day is large (polyuria) and which at the same time is rich in urea. Such cases indicate a fairly satisfactory general condition of the kidney and admit of a favorable immediate prognosis.

All progressive physicians, of course, subject their albuminous urine to mechanical sedimentation in a centrifuge. The centrifuge is undoubtedly a valuable instrument, but in many cases it has proved a red herring drawn across the scent of our preconceived opinions.

This instrument has taught us, for instance, that both blood corpuscles and hyaline casts of the kidney are not infrequently found in normal urine. "Among seventy-four soldiers in good health, Hwass found by centrifugation casts of various kinds in sixty-nine, viz.: hyaline in sixty-five, of whom only forty-eight presented albumin in the urine; epithelial, granular or not, in twenty-five, of whom twenty-three presented albumin. From these researches it appears consequently that renal casts are frequently met with in ephemeral albuminuria of persons in good health, and even in healthy individuals without a trace of albuminuria" (Professor Marie, *Paris Medical Week*, Vol. 4, 1896, p. 268). Nevertheless, the appearance and abundance of certain casts do indicate, to a certain extent, the nature of the changes going on in the kidney. If a broken hyaline cast or two; especially if they be small ones, are seen in a faintly albuminous or normal urine whose coloring matter averages well, and, if the patient seems to be in good health, and has no retinal or cardio-vascular changes, the prognosis is good.

Blood and epithelial casts, together with kidney epithelium, and anuria, indicate an acute nephritis, whose prognosis is variable. If the casts be of the waxy and granular variety we have to deal with a large white kidney, the prognosis of which is gloomy. Clinical experience has taught us that the overly fat or the overly thin patient, especially the former, bear albuminuria badly; hence the relative prognosis is bad.

After the forty-fifth year, from the viewpoint of life insurance, the state of the arteries and the specific gravity of the urine, are more important factors in prognosis than in the chemistry of the urine.

The age of the subject is a prognostic factor of capital importance "An occasional trace of albumin in a man of 40, with or without a few hyaline casts, and with increased tension of the vessel walls, usually indicates chronic changes in the kidneys" (Osler).

Albuminuria at this period of life, or later, may indicate a more or less wearing out of the glomerular epithelium, just as senile emphysema is the sign of the wearing out of the elastic fibers of the lung.

In other words, the prognosis is worse for the same reason the prognosis of asthma, cystitis, pneumonia, etc., is worse in elderly people than in the young, viz.: because degenerative changes are in active operation at this period of life.

A particularly gloomy prognosis must invariably be given in the case of a patient the subject of albuminuria who is also an alcoholic. This is a bad combination even though the amount of alcohol ingested be small. To the life insurance company I fancy such cases must be a veritable *bete noire*.

The presence of albumin, formerly regarded as indicative of chronic nephritis or Bright's disease, is now recognized as occurring under many circumstances without the existence of serious organic change in the kidney. Two groups of cases may be recognized—those in which the kidneys show no coarse lesions, and those in which there are evident anatomical changes. Osler classifies the two varieties as: albuminuria without coarse lesions, and, albuminuria with definite lesions of the urinary organs. For convenience of description, I shall classify the subject of albuminuria into two broad groups, viz.: Organic and Functional.

(*a*) ORGANIC.

The data for the prognosis of chronic nephritis are now tolerably well known. The prognosis rests on the degree of permeability of the kidneys, which may be estimated by the toxicity of the urine and the degree of resistance of the heart, shown by the character of the cardiac rhythm, especially by the *bruit-de-galop*.

Albuminuria in the form of Bright's disease with deep-seated, diffuse lesions of the kidneys is invariably of considerable immediate gravity. If suppression of urine is the threatening symptom in acute albuminuria, permanent dropsy and slow intoxication are signs to be dreaded in the chronic form. With regard to whether recovery is possible, and the length of time during which a patient who has presented symptoms of Bright's disease may survive, it may be stated that anatomical recovery is exceptional, while functional recovery is possible, the lesion being compensated for during many years. How long this compensation will last is a difficult matter to foresee. If decided symptoms of Bright's disease make their appearance in a subject who may be reasonably suspected of being affected with small granular kidney, death is never delayed over three or four years. In cases of large white kidney, the survival is still shorter, not exceeding five or six months. In the large number of cases in which there is no indication of either the one or the other of these ultimate forms, no definite answer can be given to the question, the outcome always being a matter of uncertainty (Talamon).

In regard to the prognosis of acute Bright's disease (acute parenchymatous nephritis), it may be said that, on the whole, it is favorable, as there are a great number of mild cases which recover in a few weeks or months. The young bear the disease badly. The condition of the circulatory system is of great importance. The presence of a considerable degree of dilatation of the heart, indicating failure of the heart muscle to overcome the increased arterial tension, is a bad augury. On the other hand, an even more unfavorable sign is the entire absence of an increased tension in the pulse throughout the attack, a condition which sometimes occurs in weakly subjects. The persistence of albuminuria when the other acute symptoms have disappeared is indicative of a probable lapse into the chronic condition.

We now pass to the consideration of those forms of albuminuria, more difficult to explain and described as intermittent, cyclic, functional, etc., the symptomalogical signification of which is still a matter of controversy.

(*b*) FUNCTIONAL.

1. Cyclic albuminuria has of late attracted great attention. On account of the divergence of opinion as to its significance, its obscure pathology and its inherent importance to medical men in their dual capacity as practitioners of medicine and examiners for life insurance, this disease observes a most careful study. A majority of cases occur in boys or young men, and the condition is often discovered accidentally.

There are really two classes of subjects among whom this disease is chiefly observed: (*a*) Weedy young men (city men as a rule) of lowered cardiac tone who are indulging in habits inconsistent with their physique—either in athletic exercise beyond their capabilities, in sexual excesses, or in tobacco; (*b*) school boys or college youths whose trouble may be traced to exposure to cold, masturbation, or excessive physical exertion. The second is the more numerous class of the two.

The following is a fair description of one of these cases as a busy physician encounters them in practice: The medical man is consulted by a youth, or young man, who for some time has experienced a feeling of general weakness for which he is unable to assign a cause. He is not exactly ill, all his functions being unimpaired: he eats, drinks, and sleeps as usual, but he quickly gives out on making an exertion, having at times a sensation of lassitude and weight in the limbs which enervates him. He may also suffer from palpitation, headache or vertigo. As a rule, the pulse is not of high tension and the second aortic sound is not accentuated. The urine is seldom of a specific gravity lower than normal; its color is sometimes deeper than usual, and it frequently deposits crystals of uric acid and oxalate of calcium.

Marie, whose name is so intimately identified with the disease under consideration, thus describes the subjects of cyclic albuminaria: "It happens very frequently that the discovery of cyclic albuminuria is accidental. Cases are numerous in which an individual, absolutely healthy in appearance, who honestly believes himself to be in perfect health, on presenting himself for the medical examination required for employment in certain branches of the civil service or for taking out a life insurance policy, which includes examination of the urine, is found by the medical man to be affected with albuminuria, though there is no renal affection to suggest the existence of such a condition." In investigating cases of this disease it has been shown that the albuminuria makes its appearance in the morning, increasing until 5 o'clock in the afternoon, and disappearing more or less completely on the patient's retiring for the night. In such cases, if the patient keeps his bed during the day, there is no albuminurla, while getting up in the night provokes it.

According to Marie, the cause of this curious phenomenon is not the motion, but the upright position (Arnozan). Why does an individual pass albumin in the morning and not in the afternoon, and when in the upright position and not when lying down? Arnozan suggests that when a kidney is inflamed it permits albumin to escape, but that less escapes from the slightly toxic urine of the night than from the highly toxic urine of the day. Other possible explanations are: abnormal diffusibility of the albumin; increased pressure in the glomeruli (erect position, exercise, etc.), and vasomotor paralysis from modified innervation.

These explanations are far from satisfactory because intermittent albuminuria is not always cyclic; it sometimes is more abundant in the morning than in the afternoon. Stilling, Marie and others who have studied this disease, lay great stress on the upright position, and absence of the ordinary symptoms of Bright's disease.

A varied prognosis is ever associated with an obscure pathology: cyclic albuminuria is no exception to the rule. I shall now place in juxtaposition two views of prognosis, one favorable, and one unfavorable; after reading both one will be inclined to agree with witty Sidney Smith that "there is nothing so unreliable as figures except facts."

Professor Teissier, before the French Congress of Internal Medicine, 1896: "I have kept under observation for ten years" (cases of cyclic albuminuria), "also accumulating fresh evidence from other sources. Not a single death has occurred among 28 patients whom I have had under observation; of these, 24 have been absolutely free from albuminuria for several years, only 4 have presented ephemeral recurrence. Four of the girls are now married and have given birth to several children; only one presented albuminuria during pregnancy, but there was no eclampsia."

Dr. Thomas W. Bickerton, before the New York Academy of Medicine, January 18, 1898: "If the albuminuria persisted or recurred frequently, the kidneys were surely damaged. In my work as a life insurance examiner, I have found that most of the simple cases terminated fatally. Out of 148 cases I have been able to trace 114, in a period of about eight years. Of this number 30 applicants had died."

Those who entertain favorable prognostic views of this disease, lay great stress upon the absence of organized elements in the urine of such patients; but if casts be absent, centrifugation has revealed the presence of epithelial elements, and even microbial colonies (Oswald, Kraus, Landi).

From all I can gather from the literature of the subject, the trend of opinion is toward regarding cyclic albuminuria as a manifestation of slight nephritis, which may gradually pass into Bright's disease. Many excellent observers, however, (Teissier, Merely), contend that this slight nephritis is susceptible of being completely cured, spontaneous recovery being frequently obtained.

The prognosis therefore is not absolutely unfavorable, and recovery may be looked for when the albumin is not too abundant, when the daily albuminuric period is of short duration, and when the neurasthenic symptoms are slight (Arnozan).

2. Physiological albuminuria, so-called. If albuminuria, from whatever cause, be "due to desquamation of epithelium of the capillaries of the tuft"(Prof. Croq), physiological albuminuria is an impossibility. Grainger Stewart, Leube, Finot, and especially Capitan, are chiefly responsible for the retention of this unfortunate designation. They do not maintain that albumin is a normal component of the urine, but they contend that many cases are met with whose subjects are in robust health, who are apparently well, who lead an active life, and who do hard work, therefore they are satisfied in pronouncing such cases as ephemeral or physiological albuminuria. There are many, however, who will be disposed to think that their deductions are false. Because we fail to notice ill health or a disturbance of our functions, does not necessarily imply that our condition is normal. There are many slight lesions, not interfering with practical working health, which nevertheless are not normal or physiological. How often, for instance, does one discover an endocardial heart murmur, the subject of which honestly believed himself to be in perfect health! In my opinion, albuminuria is always pathological and never physiological; it is a perversion, transient it may be, but still a perversion, of the normal physiological functions of the kidney. Until a large number of cases of so-called physiological albuminuria have been watched for a long time—15 or 20 years—and it has been shown that a

greater morbidity or mortality has not occurred among them than among an equal number of other subjects, the physician will regard such cases as indicating that changes in the renal and glomerular ephithelium has taken place—changes which if not permanent are at least ephemeral and temporary.

3. Infective and Toxic Albuminuria. Febrile disorders of all kinds are prone to be accompanied by the presence of a small amount of albumin in the urine.

The majority of infectious diseases determine nephritis, a microbe or several associated microbes acting directly on the kidney (Bouchard). A cloudy swelling of the glomeruli results which, however, cannot be regarded as an organic lesion.

In toxic albuminuria, it is not the microbe which acts on the kidney, but the toxines which such microbes generate. This is the case in diphtheria, tetanus and cholera, as Talamon has pointed out, and as Roux, Enriquez and Hallon have shown by experiment with respect to the first of these diseases.

The immediate prognosis of infective nephritis is usually favorable, but the kidney may receive therefrom a taint which will not reveal itself until many years afterward. It is extremely common, occurring in erysipelas, typhoid fever, pneumonia, measles and numerous other diseases. It is ushered in insidiously in typhoid fever, erysipelas and pneumonia, but with a great uproar in scarlatina and measles. The prognosis of both toxic and infective albuminuria is that of the original disease.

4. Gout and Lead Poisoning. The prognosis of albuminuria of both of these affections is bad, since it has been shown both clinically and experimentally to be accompanied by such organic disease as is found in the granular kidney of Bright's disease.

5. Various Functional Disorders. Dyspepsia, a highly nitrogenous food such as eggs used in excessive amount, some of the dermatoses, the blowing of wind instruments by the young, burns, cold bathing, prolonged mental effort, the inhalation of sewer gas and excessive muscular exertion, have been shown to provoke the presence of albuminuria. I shall say only a word or two with reference to the last of those named. It has recently been shown that bicycle riding determines the presence of this particular form of albuminuria in a surprisingly large percentage of riders. The urine of a large number of such riders was examined first, before riding, when no albumin was present, and second, after a run, when in so large a proportion as 50 per cent. abundant albumin was found, together with tubal cylinders. In 8 members of a bicycle club, tube casts of all kinds were found in abundance in all but 2, with more or less albumin in all. Five healthy boys also showed albumin in the urine after riding.

This albuminuria was so marked that had a medical man been called upon to make an examination of any of these individuals after their ride, and had been unacquainted with the circumstances, he would have been justified in arriving at a diagnosis of chronic parenchymatous nephritis. The conclusions reached by the Italian writer, from whom I have quoted, is that the frequent repetition of such experiences can scarcely fail to terminate in chronic nephritis sooner or later. Von Leube has made the same observation in soldiers after a forced march; Senator, Aufrecht and Kolbe have met with the same phenomenon in oarsmen, and Müller, Eschle and others have also referred to it.

"Müller regards this albuminuria as physiological, because it is of short duration; but I am inclined to think that it is a paroxysmal pathological albuminuria" (Albu).

6. The so-called "Minimum" albuminuria of the French. Minimum albuminuria, in which the proportion of albumin is about .05 per cent., is closely related to cyclic albuminuria, on the one hand, and to the phosphaturia albuminuria (A. Robin), on the other. It is characterized by continuity and a small amount of albumin. Its pathology is still a matter of dispute. By some regarded as an incident of growth, by others assumed to be a sign of acute nephritis imperfectly recovered from, it is thought by Earles to be caused by the ingestion of too rich or too abundant food. Sometimes it precedes an attack of gout. Minimum albuminuria is sometimes recovered from, but the prognosis is uncertain because it often constitutes the first stage of Bright's disease.

7. Anemia. The albuminuria of anemia, chlorosis and asthenia is observed chiefly at the age of puberty and adolescence. It is generally agreed that it is benign whether it be slight or well marked.

8. Nervous Disorders. Serious nervous disorders, such as tetanus, delirium tremens, cerebral hemorrhage, exopthalmic goitre, etc., are sometimes productive of a temporary albuminuria. Mental emotion also at times provokes it; while it is very frequently present after a convulsion from any cause—epilepsy, apoplexy, strychnine poisoning, rabies, etc. The prognosis is that of the producing disease.

When albuminuria supervenes on a diabetes, which it does in 30 per cent. of all cases (Bouchard), it is usually due to the irritation of the renal epithelium owing to the passage of sugar through the kidney. It is of bad augury for several reasons, the chief one, perhaps, being that the diet which is suitable for diabetes is the worse one possible for albuminuria, and vice versa.

The albuminuria of pregnancy and the puerperal state does not come within the scope of this paper.

DIABETES MELLITUS; ITS RELATION TO LIFE INSURANCE AND ITS TREATMENT.*

By JAMES H. REED, A.M., M.D., Battle Creek, Mich.,

Member of Battle Creek, Michigan, Academy of Medicine; Calhoun County, Michigan, Medical Association; Michigan State Medical Society; American Association of Life Insurance Examining Surgeons; and the American Medical Association.

The recorded prognosis of diabetes mellitus is exceptionally unfavorable, but if the text-books were to be rewritten, many changes would be made not only in their relation to diabetes but to many other diseases. Diabetes is not only a very dangerous disease, but likewise, very insidious, and its cause being practically undetermined, individuals to-day, apparently excellent life insurance risks, next year may show unmistakable symptoms of diabetes.

Scientific observers, however, have proved that, with proper care, the life of a diabetic can be prolonged for many years. Statistics also show that in reality a very small percentage of deaths are recorded as diabetics; whereas, many persons afflicted with the disease, succumb at last to tuberculosis, rheumatism, etc.

Some physicians claim that forty per cent. of diabetics die from tuberculosis. The rapid strides made during the past ten years by physicians studying the medical treatment suitable for controlling the symptoms of diabetes, have enabled them to, in more than seventy-five per cent. of the cases, prolong the life of each patient for many years, so that if the medical departments of the life insurance companies were active and would see to it that policy holders who become diabetics place themselves in the hands of physicians who thoroughly understand the treatment of the disease, the risk would be very materially lessened. The fact that we know so little regarding the etiology of diabetes is the most regrettable we have to contend with. The truth is, we are now practically as much in the dark regarding it as we were a decade ago.

For the past ten years I have devoted a great deal of my time to the study of diagnosis, treatment, pathology, etc., of diabetes; and no one can more appreciate contributions to the meager literature upon this subject, and it must be understood that my ultimate object in presenting this paper is the hope that it will bring out in discussion, points which will be beneficial to us all.

While studying this disease, I have, of necessity, made its treatment somewhat of a specialty, thereby attracting the attention of many physicians. During the year just passed, I have seen thirty-seven cases, the majority of which were treated under my direction, some at my office, others at my colleagues, with whom I had the honor of the position of consultant. During the past ten years my records show that I have, directly and indirectly, treated over two hundred diabetic patients.

---

*Read before the American Association of Life Insurance Examining Surgeons, St. Paul, Minn., June 3, 1901.

My plan is to study the patient carefully if possible ten days or two weeks before deciding upon the method of treatment. This is done in order to be sure of the diagnosis. The able students of diabetes have discovered a number of causes for the disease; that is, it may be diagnosed as traumatic, pancreatic, hepatic, or of rheumatic origin, therefore, the necessity for a decision regarding its cause before taking up the question of treatment. Family history, fixed habits, etc., etc., should also be known by the physician, and last, but not least, by any means the daily study, for ten days, if possible, of the urine of the patient under consideration. I do not mean that he should be satisfied with one sample per day, but that, if possible, he should have the several quantities passed for twenty-four hours in separate containers; that is, a container for each micturition. After the examination of them separately, we should mix them and take an average. A great deal of time is necessary to correctly diagnose diabetes, but if success in its treatment is hoped for scientific methods must be practiced.

You are all very familiar with the ordinary tests applied to urine to determine whether or not it contains sugar. The various cupric oxid solutions are reliable only when we have knowledge of all the foods and medicines ingested by the patients under examination or treatment. The dispatch with which a test can be made with the cupric oxid solutions for sugar, is so fascinating that we are oftentimes tempted to be satisfied with the apparent records produced. In my practice I never depend upon the records obtained by the tests before mentioned, but pin my faith to the old way of making tests—fermentation. For this purpose. I have found Einhorn's saccharometers to be most useful, as they are graduated up to ten per cent. Beyond that the percentage can be accurately determined by a proper dilution of the sample under observation. It takes a great deal of time to make analysis by fermentation, but I find it absolutely necessary to take the time, and when you are all familiar with the satisfaction to be had by finding that a sample of urine which showed persistent sugar excretion according to Fehling's test, when subjected to the fermentation test contained none. A small quantity of glycerine alone ingested by a diabetic patient will cause a reduction of Fehling's solution which shows every appearance of sugar. Many other drugs produce similar results, therefore the absolute necessity for a more accurate urinary test.

Afte the diagnosis is settled comes the question of a proper diet. Every student of this disease recognizes that diet plays an important part in its successful treatment. If I find the disease to be of mild form there is no necessity for resorting to an anti-diabetic diet; whereas, if it be very aggravated, then it is absolutely necessary that some foods be restricted. I will say, however, that I invariably allow a certain quantity of carbohydrate foods, and insist upon the ingestion of a goodly supply of very fatty proteid foods. Formerly, I exercised great caution regarding the use of milk, and followed the advice of some of my successful colleagues regarding the skimmed milk diet. For some years past, however, I have allowed my diabetic patients to have cream, butter, or unskimmed milk according to their wishes. The physician in charge must, if success is hoped for, prescribe the foods he wishes used by each of his patients, and make frequent changes. Patients suffering from diabetes cannot be cured by starving them. A liberal diet is necessary, but the cure of the disease must be accomplished by medicines. Depending solely upon a dietetic treatment is uncertain, unreliable and dangerous.

I also make examinations of the blood of my diabetic patients showing symptoms of rapid decline, to ascertain, if possible, the increase or decrease of sugar therein, which has aided me especially in the prevention of coma. The methods of blood examination vary. Some make use of the methylene blue test, while others make a direct reduction for the sugar content of the blood.

When preparing the blood for examination I have found the instructions of Jakob quite serviceable. A puncture with a sharp triangular needle is quickly made in the purely cleansed and dry finger tip. The first drop of blood escaping being removed, and the second being taken upon an absolutely dry cover-glass (washed with alcohol or ether). Upon this is placed a second cover-glass, and the two are separated with slight pressures by means of forceps. Special care is to be taken in preventing an excess of moisture to the cover slips in order to avoid the destruction of erythrocytes through the presence of water. With the prepared surface upward the preparation is permitted to dry in the air, for half an hour; these instructions, of course, pertain to microscopic examination.

When the patient is suffering with extreme depression and a tendency to continued drowsiness, it is necessary to determine the presence of diacetic or oxybutyric acid. This can be done by making analysis of the fresh samples of urine with ferric chloride. The best methods for that work are set forth by Tyson in his "Practical Examination of the Urine."

That coma can be prevented, has been proven time and again, but tests for diacetic or oxybutyric acid must be made frequently in order to do so. The greatest danger exists where there is persistent constipation, but I have always been able to combat it by my method of treatment. This method I have set forth at length in papers read before my county and State medical associations. The last one, which is very exhaustive, appears in full in the published proceedings of the Michigan State Medical Association for July, 1900.

During the past seven years, or since I have taken up the careful study of diabetes, I have not seen a single fatality on account of diabetic coma, and I have made it a point to keep in touch as much as possible with the various patients I have treated since they passed out of my hands; in fact, I impress upon them the necessity of being informed from time to time of their health. Without fee, for my own satisfaction, in every case where I have created sufficient interest on the part of the patient, I have a sample of urine sent me every three months, and in order to save all expense possible, have procured mailing tubes and bottles for that purpose. A great many of the diabetic patients whom I have treated have really belonged to my colleagues scattered throughout the country, and who have followed out my line of treatment. These men have become personal friends and take apparent pleasure in writing me of the splendid results observed. It is generally conceded, I believe, that few recover from diabetic coma. The reasons are that those who are less acquainted with the disease fail to discover its approach in time to check it. Unless the physician keeps himself informed by frequent analysis of both blood and urine of diabetic patients, these fatalities cannot be prevented.

The treatment of diabetes must be considered from three different standpoints—hygienic, dietetic and medicinal. If success is to be hoped for the attending physician must prescribe rules of hygiene and diet to be adhered to as strictly as the taking of medicines.

The results recorded by some of the most scientific men who have studied the question of dietetic treatment of diabetes furnishes unquestionable evidence that hygiene and diet alone will not produce cures; in fact, the relief, if any, is only temporary. If a cure is to be effected or even permanent relief obtained, it must be accomplished with medicines, and probably hygiene and diet as an adjuvant.

I believe it is as impossible to cure a diabetic patient without the use of medicines as it would be to cross the Atlantic in a tub.

The proper medical treatment requires next to diagnosis and physical study of the patient, the most serious consideration. My experience teaches me that we need not expect any single preparation to effect a cure, and different ones must be exhibited to correct and remove the different symptoms.

To control the sugar excretion I have prescribed eulexine for each of my diabetic patients during the past five years. The full formula and its physiological action have been described by me in former papers on this subject.

The fact that the few men in this country who make the treatment of diabetes somewhat of a specialty are all prescribing this preparation for controlling the same diabetic symptoms as myself, seems to be very good evidence that its therapeutic action is highly satisfactory. For other symptoms I prescribe other preparations, and have carried out a fixed régime, which must be prepared to suit each especial case.

I direct my patients to drink Lithia water ad libitum, to take a sponge bath every day and salt glow bath once every week, and when the tell-tale carbuncles make their appearance to take a salt glow bath twice a week, anointing the flesh thoroughly afterwards with glycothymoline, which I have found to be one of the best preparations for allaying nervous and irritable conditions of the skin. When I have to resort to sedatives to produce sleep and rest I prescribe papine. For the different conditions and different stages as indicated, calomel and soda, antipyrin, bicarbonate of soda, arsenate of soda, aloin, strychnine, belladonna, and ipecac in combination, strychnine sulphate and nitrate and milk of magnesia.

Careful and systematic attention should be paid to the exercise the patient takes, the kind of clothes worn, the amount of sleep, the kind of baths, the diet prescribed, the books read, the company kept and the medicines administered. The object in watching all of these particulars is for the purpose of keeping thoroughly in touch with the many and frequent physiological changes which take place from time to time.

The peculiar nervous phenomena demonstrated in some cases will surely cause constant anxiety, and it is for that reason, and to combat the many exigencies which arise that such watchfulness is necessary. There are times in the history of a case of typhoid fever, malaria or pneumonia when the attending physician can leave his patient without anxiety and go to sleep at night. Not so with diabetes. The physical changes are at all times dangerous and many times fatal. However, the usual course of the disease is of such a nature that the physician does not become alarmed until the danger line is reached. For that reason, unless he is in constant attendance and watchfulness over his patient, he will not be prepared when the necessity for immediate action arises.

I hear the question asked now, What are these changes to which I allude? They are so numerous, in fact, that you cannot designate them in a few lines. The most prominent are the loss of appetite, loss of will power, film gathering before the eyes, sometimes a double vision, splitting headaches, loss of memory, uncertainty of step, constant fear of falling, excessive paleness, lip tremor, transparency of nostrils, numb sensations in the cheeks, crawling sensations of the flesh, prickly sensations in the fingers, persistent constipation, extraordinary excess of urine, very high specific gravity, etc., etc., but it must not be supposed that these conditions exist in every case of diabetes.

THE ACTION OF TINCTURE AMAL IN TYPICAL CASES OF PHTHISIS PULMONALIS.

By RUTSON R. LEONARD, M.D., Broome Center, N. Y.

Remedies of more or less therapeutic value are being constantly written of and introduced to professional attention. The following references are to the action of Tincture Amal, with which I had experience last year:

Case 1.—February 26th last I was called in to see J. F. W., male, 38 years of age, single. He had been for some time under treatment of two physicians, who, upon examination, concurred in the diagnosis of advanced consumption. He had been sick for eight months, and for some time previous to my visit confined to his bed. Upon examination, found dulness over the lower part of both lungs, rales, labored respiration, some fever. The patient was very much emaciated; coughed almost incessantly; expectoration mixed with considerable blood; night sweats; loss of appetite; insomnia. I prescribed Tincture Amal, and his progress was marked from the start. His cough and night sweats soon disappeared; his expectoration grew very much less; he could sleep well; his appetite returned. I have seen the patient recently, and all symptoms mentioned had ceased; he has nearly regained his normal weight, and I have discharged him as cured.

Case 2.—S. H., male, white, age 69, farmer. Was called in to see this case in March last. He had been troubled with chronic phthisis pulmonalis for nearly thirty years, but was able to be about and do light work on his farm up to shortly before I was consulted. Cavity over lower part of left lung; his expectoration was excessive; he had become emaciated and suffered from loss of appetite and insomnia. I did not expect the patient to live over a month, if that long. Prescribed Tincture Amal with remarkable results. I saw him last on August 8. He had regained his normal weight; he is able to do all kinds of labor on his farm, and I can truly say seems to have taken a new lease on life. I do not consider him longer in need of the medicine, but such is his faith in it that he insisted upon my ordering more, "regardless of expense."

When I became convinced of actual results, proving that effect of Tincture of Amal in lung trouble to be exceptionally thorough and permanent, I had no hesitation in extending its use in my practice. I have now several patients under treatment, all of whom are progressing very favorably. The causes of tuberculosis, the numerous complications resulting therefrom, are now too well known to require a discussion at my hands. Briefly stated, the effect of Tincture Amal is to build up faster than the disease tears down, thus conquering it, and so far as my experience goes, it is the only remedy known at this time that accomplishes it effectively.

GAILLARD'S MEDICAL JOURNAL.

A MONTHLY JOURNAL OF MEDICINE AND SURGERY

Scientia et Veritas Sine Timore.

PUBLISHED BY THE NEW YORK MEDICAL PUBLISHING CO.,
220 Broadway, NEW YORK.

All communications, of either business or editorial character, should be addressed to Gaillard's Medical Journal, 220 Broadway, New York.

Articles for publication will be received with the understanding that they are contributed exclusively to this journal. Reprints will be furnished at actual cost, orders for which should accompany the manuscript. Authors of accepted articles may receive twelve copies of the issue in which they are published. Necessary illustrations will be furnished without expense to authors when suitable drawings or photographs are furnished.

EDITORIAL.

THE THEORY advanced by Professor Koch at the British Congress on Tuberculosis which recently completed its sessions in London, regarding the non-identity of human and bovine tuberculosis, and the non-transmissibility of the latter form of the disease to human beings has been received with the greatest interest by the scientific world, and deservedly so, coming, as it does, from such an eminent source. The theory has not, however, met with a very favorable reception and the probabilities are that it will furnish a fertile topic for discussion for some time to come. Dr. Brouardel, of Paris; Lord Lister, and other eminent authorities who took part in the discussion of the subject, flatly opposed the belief of Dr. Koch regarding the non-transmission of bovine tuberculosis to human beings, and at the closing session of the congress a resolution was adopted expressing the opinion of the congress that the health officers should continue every effort to prevent the spread of tuberculosis through milk and meat, and that, as the doubts concerning human immunity from bovine tuberculosis raised by Dr. Koch were of vital importance to the public health, the government should immediately institute a rigid inquiry into the identity of human and bovine tuberculosis.

In an article upon this subject by Professor Victor C. Vaughan, of the University of Michigan, which was read at the Seventeenth Annual Meeting of the New York State Medical Association, the author stated that cattle seem to be only slightly susceptible to the human tubercle bacillus. On the other hand, Theobald Smith, of the Harvard Medical School, has shown that the bovine tubercle bacillus is more virulent than the sputum variety, and Klein asserts that the latter increases in virulence when grown in milk.

Vaughan, in the article referred to, makes the following statements: "Milk, butter and meat from tuberculous animals may convey the infection. Experimental evidence concerning the extent to which the milk of tuberculous cows is a source of infection has been somewhat conflicting. All agree that milk is likely to carry the infection when the udders are involved, and when the disease is widely disseminated in the body of the animal without involvement of the udder."

THE SUMMER heat is upon us. It has been a little late in coming, but it is now here with a rush. Between this time and October we must be prepared to face it, endure it, and, if we cannot keep cool, at least keep our tempers.

It is surprising how comparatively few people take the radical changes from cold to hot in a rational manner, and so modify their clothing, eating, drinking and conduct of life as to maintain the even equilibrium of good health.

There are some who, with the first advent of a hot wave, immediately change their underwear from heavy wool to light cotton, and then go on living just the same as though it were 32° and not 82° average temperature. It is only a very robust, strong constitution that can stand this and not suffer ill consequences.

We must meet the changes gradually, modify our food and drink with the varying climatic changes, frequently so sharp and abrupt in this latitude, must take more frequent baths, less exercise and above all things, shut up shop before worn out and go off on as long a rest vacation as our time, necessities and purse will permit.

Every one should have at least two summer weights of underwear—a medium and a light change, according to the fluctuation of the mercury, from day to day. During the summer season, starch shirts should be discarded and only worn when evening dress is donned. Substitute for them a soft negligee cotton or other cool fabric, easy and loose about the neck, allowing free circulation of blood to and from the head.

For wearing apparel, two suits of clothes will meet all the requirements—more are a luxury, not a necessity. For very hot, humid days, a light flannel, home-spun or serge material; for cool nights or sudden drop in the temperature, a medium weight double-breasted suit of wool texture.

Now, on the matter of diet and drink, really the most important items of the subject under consideration.

We are fully convinced that most people, at least in this country, eat too much and drink too little, summer or winter; take too much exercise in summer and not enough in winter for the preservation of their health and the maintenance of that perfect equilibrium which has been designated "mens sana in corpore sano."

The rule of nature and her food products indicate very clearly what should be our manner of living. The summer season presents a liberal variety of fruits, vegetables and salad dishes. The early spring gives us fresh eggs; the sea furnishes fish in abundance, the oyster departs and the succulent clam succeeds, during the months minus the R.

Animal food is not demanded, nor, indeed, needed in the same quantity as in winter. Every one will feel more comfortable and in better health by limiting the consumption of meat to once a day, and preferably at the last meal.

On the question of drink there can be but one opinion. Drink plenty and freely of any good cool water (not ice water) and leave alcoholics alone.

It seems to be the most universal verdict now of medical literature, at home and abroad, that alcohol is not a food; that it is not a true, lasting stimulant, but a depressant, and that finally, it is much abused and responsible largely for the high mortality of the human race. We are not total abstainers; we believe there are some circumstances, some debilitated and depressed conditions which crop up at certain times in the animal economy when alcohol is called for—but the instances are rare—in health or disease. At any rate, during the heat of summer, it should be let severely alone.

When overheated and thirsty, sip, do not gulp down ice water, as follows (the suggestion was made to us by a prominent life insurance medical director, noted for his sound, common sense): Drink slowly a glass of cold water, by the mouthful, allowing it to remain a few seconds in the mouth, before swallowing. In this way the thirst will be more quickly and safely satisfied than by half a dozen glasses bolted quickly.

OUR COUNTRY apparently has reached a period in its history when the wealthy few are considering seriously the best means of distributing their surplus for the benefit of the many poor.

Not that we have ever been behind other nations in the practice of philanthropy since we have grown to the dignity of a nation, as the many and various educational and benevolent institutions scattered throughout our land, can, in their silent eloquence, so abundantly testify.

But general prosperity and individual accumulation of wealth have come to us so rapidly of late, that along with it seems to come the spontaneous spirit on the part of the rich for widespread distribution.

Also, because naturally and very properly, men who are able to give desire to see the evidence of their generosity during their lives.

They know of too many noble purposes which have been frustrated through endless litigation and ultimate defeat, from legacies left after death.

To labor diligently during one's productive period of life—to be successful and to enjoy the fruits of one's struggle and to see others, less fortunate, participate in those enjoyments and privileges, is really, after all, the sum total of any man's happiness.

We have always believed in life distribution rather than post-mortem good intentions.

Every man capable of giving generously is the best judge, we take it, as to the method or purpose of his munificence.

Whatever may be the special object of his charity, the world will be the better for it.

We do desire, however, to call attention to a means of aid, which, as men of medicine, it appears to us has not received that degree of consideration, or perhaps been as fully understood, by the benevolent rich, as the subject deserves.

We refer to the improvements of dwellings and sanitary environments of the poor, whom we have with us always.

Such terrible loss of human lives (which history of the past has handed down) to the dwellers of closely aggregated communities, from the plague, smallpox, typhus fever and other filth diseases, no longer prevails to-day to any alarming extent, thanks to the combined efforts of the medical profession, of sanitary science and the aid of the intelligent laity.

But we still have the ravages and high mortality of consumption, scarlet fever, diphtheria, typhoid fever and infant bowel diseases about us.

The tenement districts of a densely-peopled city have well been described as the hotbeds of disease and the sources of iniquity. It can not be wondered that such environments as encompass the child of the tenement should engender disease and foster crime.

Under the able administration of the late Mayor Strong, of New York city, the Board of Health conclusively demonstrated by facts and figures that it was in the packed, overcrowded tenements, particularly on the East Side, where the tubercle bacillus flourished and wrought its deadly work.

In the flooring, walls, woodwork—in the dust and dirt of accumulated time, on door transoms and sills—in fact, everywhere lodgment was attainable—there the fatal germs were found, there they flourished and thrived—a hidden, unseen, microscopic enemy, and a menace to every new family or occupant.

In such instances where the medical corps were able to thoroughly clean, disinfect and purify the atmosphere and surroundings, there followed a marked decrease in the mortality from tuberculous infection in the particular dwelling or tenement so treated.

No greater act of philanthropy—none wider or more wholesome, none with larger benefits to the individual or the State, could be devised than the amelioration of the sad and shocking conditions which now so widely prevail in certain tenement districts of our great metropolis.

Something has already been accomplished in this direction, but there is yet a wide field open for him going about, seeking to do good, and who has the means of doing it.

The president of one of our large life insurance companies says: "As a means of distributing wealth and protecting the unfortunate at the cost of the more fortunate, nothing could be devised which would more nearly approach the ideal than the system of American life assurance." * * "In these days when there is so much discussion as to the most feasible way of arresting poverty and encouraging thrift, the study of life assurance as practiced in America by the companies which have worked out such an example to the world would repay the time and attention given to it on the part of every intelligent citizen who loves his country and his kind."

Now, we do not question or criticize this statement for a moment; we are in the business ourselves, and we know they are true words and nobly spoken. But there are other ideals.

It is not the object of our remarks to dictate or presume, to suggest or advise, where or in what way the multi-millionaire with charity in his heart and dollars in his pocket shall place his gifts.

Improved dwellings for the working classes and all that goes with them—cleanliness, abundance of fresh air, sunshine and roof gardens, will do more to educate the masses, lessen mortality, disease and crime, drunkenness and vice, than any other scheme, we are able, in our humble judgment, to conceive of.

JUST NOW we are entering upon the fruit and vegetable season in this latitude, and it is always a noticeable fact that along with it the cases of intestinal troubles and diarrhea are vastly increased. It is a fact that many of these cases can be directly traced to the use and abuse of these articles of diet. Under-ripe and over-ripe fruit are responsible for a large amount of the diseases coming under the head of summer complaint.

Fruit venders and grocery men are not at all careful in the selection and sale of these commodities, their object being to sell any kind and every kind of fruit and vegetables without regard to its quality. Every one knows that the green and under-ripe fruit, together with the decaying and over-ripe, is offered for sale by these venders and often people are persuaded to buy fruit at prices below the market value, not knowing the dangers that lurk hidden therein.

It is just as important for our health authorities to inspect the fruit and vegetables for sale as it is to inspect the milk, and in many cases it is far more important, for more persons consume fruit than milk, and we have many more cases of illness from abuse of over-ripe and under-ripe fruits than we have from the consumption of milk. Very little attention is seemingly paid to this by our health authorities for if the contrary were true we would not see the decayed, over-ripe and under-ripe fruit for sale, that is now offered in our markets. The cases of diarrhea and cholera morbus would be far fewer if more attention was paid the quality of our fruit supply.

A heavy penalty should be attached to every vender of these articles who violates the laws by palming off on an unsuspecting public these over-ripe and under-ripe commodities.

Society Proceedings.

AMERICAN ASSOCIATION OF ORIFICIAL SURGEONS.

The American Association of Orificial Surgeons will hold its next annual meeting in Chicago, September 18 and 19, 1901. Although quite separate, Prof. Pratt's "Clinic" will be held the same week, beginning September 16. To those familiar with orificial methods and their practical application to the cure of chronic diseases, no special appeal need be made, other than to urge their presence or attendance at this meeting, as it promises to be one of the best held since the organization of the Association. Lectures and papers have been promised by some of the most prominent medical men of the country. The discussions will be lively and interesting and one's knowledge of the work will be brightened and widened. To those who are not familiar with orificial ideas, theories and practices, we can say that there can be no more auspicious time to gain a practical knowledge of orificial surgery than at this meeting of the Association. The whole field will be brought within reach.

Due attention will be given to preparatory work, and fundamental principles thoroughly expounded and illustrated by some of the brightest surgeons of this country. Due attention will be given to after-treatment, therapeutical and otherwise. Papers and discussions will embrace the whole idea and give the sum and substance of more than fifteen years' work along lines that have yielded prodigious success to the surgeon and general practitioner. No live man can now afford to ignore orificial surgery or be absent from this meeting.

AMERICAN MEDICAL TEMPERANCE ASSOCIATION.

The American Medical Association has just held its annual meeting in St. Paul, Minn. During its sessions the American Medical Temperance Association, composed of eminent physicians and teachers in medical colleges members of the American Medical Association, always holds one or more meetings for the special purpose of promoting scientific study and investigation into the action of alcohol in health and disease. The meeting this year shows a great advance in the scientific study of alcohol and its action on the body. In the ten years of its existence its membership has grown to over two hundred, and the number of papers and discussions, all of a scientific and technical character, are increasing, so that literally this is the most authoritative organization studying the alcoholic question in this country. Of the ten papers read at the St. Paul meeting three of them discussed Professor Atwater's experiments and conclusions, then passed the following resolutions as the unanimous opinion of the association:

"Whereas, The American Medical Temperance Association, the members of which are physicians and medical teachers who have devoted years to the study of alcohol and its effects, and who are conversant with the work done by scientific men the world over to determine the effects of alcohol when given in any quantity, have noted the teaching of Prof. W. O. Atwater, of Wesleyan University, upon the food and medical value of alcohol as set forth by him in the pages of the influential lay press, be it

"Resolved, That this Association utterly repudiates the pro-alcoholic doctrine of the said Prof. W. O. Atwater as being contrary to the evidence deduced by scientific experimentation, and that his conclusions are unwarranted by the evidence resulting from his own experiments; be it further

"Resolved, That this association regards the teaching of Prof. W. O. Atwater as erroneous and a source of danger to the laity, inasmuch as such teaching contributes towards the increased consumption of alcoholic beverages by giving supposed reason for their safe use."

(Signed) N. S. Davis, M.D., President, Chicago, Ill.
T. D. Crothers, M.D., Secretary, Hartford, Conn.

Two other papers pointed out the evils from the use of cigarettes and tobacco on neurotics and young persons. One paper critically reviewed the school-book teachings on alcohol, sustaining their claim to scientific accuracy in nearly all the books used.

The address of both the president and the vice-president described the folly of efforts to check disease and degeneracy by ignoring alcohol as one of the active causes, also the conflict of experience with theory and tradition. The other papers read discussed the causes of the popularity of alcohol as a beverage and its danger in high altitudes; also the substitutes for its use in medicine.

The value and reliability of these papers is evident from the fact that eight of the ten authors are active or emeritus professors in medical colleges. Four of them are medical journalists, two of whom are in active practice.

THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

The next annual meeting of the Mississippi Valley Medical Association, to be held on September 12, 13, 14, in Put-in-Bay, Ohio, under the presidency of Dr. A. H. Cordier, of Kansas City, bids fair to eclipse all previous ones in attendance, as well as scientific merit, as the following preliminary program will show:

Unusual railroad rates have been obtained—a one-fare rate by way of Cleveland, which will enable those taking advantage of these rates to obtain an extension of tickets to October 8, for attendance upon the Buffalo Exposition. A one-and-a-third fare rate on the certificate plan will be in effect via Detroit, Sandusky, and Toledo, with extension of return limit for only three days after the meeting.

Put-in-Bay is an ideal place of meeting, the Hotel Victory a magnificent meeting site.

The address in Medicine will be made by Dr. Frank Billings, of Chicago, the address in Surgery by Dr. Reginald Sayre, of New York city. The Association is to be congratulated on the selection of these two orators, who will acquit themselves in a most scholarly manner.

GAILLARD'S MEDICAL JOURNAL.

VOL. LXXV. NEW YORK, SEPTEMBER, 1901. No. 3.

PRESENT AND FORMER USE OF ALCOHOLIC STIMULANTS.

By George W. Wells, A. M., M.D., of New York; Resident Physician of Manhattan Life Insurance Company; Member First International Congress of Medical Directors; Association of Life Insurance Medical Directors, etc.

Alcoholic stimulants have been employed from the earliest times. Even in those countries where the refinements of distillation are not known and the rudest fermentative processes are practiced some sort of decoction is imbibed to stimulate the flagging energies or dull the senses. Whatever its name or whatever its form, alcohol has its uses and abuses.

To detail its good qualities as a medicine and a food would lead us far beyond the limits of the space allotted. Anstie has very ably discussed these points in his work, "Stimulants and Narcotics," and has plainly shown that in febrile conditions and in some forms of debility alcohol is a necessity. It should, however, be given with great circumspection and should be regulated by the degree of tolerance manifested by the individual. It is extremely seductive, especially in hysterical women.

It is our intention rather to offer a few remarks with reference to its influence upon the past, present and future aspect of applicants for insurance.

The three classes of drinks—wines, spirits and malt liquors—although differing in their nature and mode of preparation, are alike in that they all contain alcohol, but the amount of alcohol varies in their different varieties. An equal amount of each, if administered for experimental purposes, would give different results. An attempt has been made to show how much a person can drink without injury, but it is evident that no general rule can be laid down, for what will benefit one may be a great injury to another. For instance, Anstie, before quoted, in *The Practitioner* of 1869, p. 34, says he has arrived by physiological experiment at a rough rule as to the amount of absolute alcohol that can be taken by a healthy man, although there are extreme variations in this respect. It should not exceed a daily allowance of from one to one and a half ounces, in whatever form; and in the same publication for 1871, p. 91, he adds that this should not exceed two ounces in cases of unusual exercises of the body or mind in adult men weighing about 160 pounds. Anstie's rule is very frequently referred to by medico-insurance writers, by examiners in their reports, and it is the usual working rule of insurance companies. In the *Encyclopaedia of Practical Sciences*, art. "Alcohol," the rule is laid down as one gramme (about 15 grains) per kilo (2 pounds) of body weight as the average, which cannot be exceeded without danger, and at the fourth Anti-Alcoholic Congress held at The Hague, composed of representative men from many countries in Europe and America, the first amount was mentioned, namely, one and one-half ounces of alcohol daily, taken with meals.

Tables of the approximate amount of alcohol in various liquors have been constructed from time to time. The following is from D. W. S. Greenfield, as quoted by "Ziemssen's Cyclopædia, Vol. XVIII, p. 176, viz.:

	Per cent.
Whiskey	50@60
Brandy	50@60
Rum	60@77
Gin	49@60
Port Wine (strongest)	25
Port Wine (ordinary)	23
Port Wine (weakest	15.5
Maderia	16@22
Sherry (strongest)	25
Sherry (weakest)	16
Burgundy	10@14
Claret (strongest Bordeaux)	17
Claret (mean)	15
Claret (vin ordinaire)	8@ 9
Champagne	5@13
Hock	9@12
Sauterne	14
Cider	5@10
Ale (Burton)	9
Ale (ordinary)	3@ 5
Perry (pear cider)	7
Brown Stout	6@ 7
London Porter	4.2
Small Beer	1.28

Professor Brande also found that small beer contained 1 to 2 per cent., ales 6 to 9 per cent., light wines of France and Germany about 12 per cent., sherry and other strong wines about 19 to 20 per cent. and brandy, gin and whisky from 40 to 50 per cent. of alcohol.

Lager beer is said to contain 2 per cent. of alcohol; and absolute alcohol, while it should run as high as 98 per cent., yet by reason of its great affinity for water which it extracts from the air, it is usually found in the shops to be only 90 per cent. It is this extraordinary power of absorbing water which produces the hardening of the tissues. Brain tissue once hardened, according to Forel, is irrecoverable.

It will thus be seen that there is no settled rule in regard to the amount of alcohol which an individual can use without injury; neither can such rule be established, for the amount which can be taken varies with the age, sex, temperament, degree of tolerance, kind of alcohol employed, and numerous other factors entering into the problem.

It is undoubtedly a matter of common observation that there are those who cannot tolerate any alcohol, be the amount ever so small; while others, on the other hand, are capable of sustaining large quantities. Very young people can endure but little, if any; and its effects vary with the chemical composition of the article. The most destructive kind of alcohol is that known as amylic, or the so-called "fusel oil." This is found in the lower grades of liquors, especially whiskys made from potatoes and starch-producing products; hence the name. Ethylic alcohol (secured from vinous distillation and vinous fermentation) is the least harmful. It is found in best whiskys, brandies and wines. Alcohol of this class is referred to when speaking of its beneficial effects.

The establishing of a rule permitting applicants the privilege of drinking a certain quantity of alcohol per diem is exceedingly objectionable, because, among other things, alcohol is exceedingly seductive in its nature, and a habit of using it is soon formed, and the habit has a constant tendency to increase; so that any rule such as has been referred to will certainly be over-reached—no matter in what form alcohol is disguised. Those who use lager beer, one of the lowest grades of alcoholics (2 per cent.) often take it in enormous quantities, so that the total amount of alcohol daily imbibed may be great. Especially will this be the case when beer is free, as it is among those connected with breweries and "the trade." These people are subjected to great strain as to their eliminating organs, while there is a constant tendency to an abnormal accumulation of an unhealthy grossness. If any of our readers have seen workmen around a brewery or drivers on brewery wagons they will remember their gross appearance in its most exaggerated form. We have in our mind a specimen often seen around a prominent brewery in this vicinity, and he is only one of an unknown number—a man about 5 feet 8 inches in height, weighing about 380 pounds, bloated, skin congested, almost purple, full of blotches, nose pendant and jelly-like, eyes sunken, breathing rapid, labored and shallow, wheezing and with a slight cough. Every movement is an exertion as he balances himself on either foot alternately, with arms away from the body and used like an athlete's balancing pole. This man, whose external appearance gives evidence of the effects of alcohol as contained in lager, together with other ingredients out of which it is manufactured and toned up, continues to imbibe day after day, must feel its effects internally. Can he be considered a good risk for insurance?

The temptation to indulge in wine, spirits and malt liquors, when the lunch is free, is often too great for those engaged in the business to withstand.

As we have seen, in whatever form these beverages may be indulged in, there will be a certain amount of alcohol. We have also found that a habit of such indulgence is soon formed. We may continue our observations by saying that this habit once formed is seldom abandoned entirely: it is rather continued to a greater or less extent through life—which is often a short but merry one. Frequent drinking is the worst form of indulging. It is well known that moderately small doses of medicine frequently repeated will keep the system under its influence continually, while larger doses given at long intervals permit it to recover in a measure before another dose is taken. This principle is well illustrated with alcohol. Continual tippling will keep the system in a constantly stimulated and therefore abnormal condition, with a chance for an occasional over-indulgence, and always of becoming an habitual user. We sometimes hear of such persons reforming; but reformed drinkers are not always to be depended upon. They are unknown quantities in the calculation, and are not good stock for an insurance company to invest in. The reformed alcoholic applicant is usually an insurance bric-a-brac—very rare and very costly.

The consequences of immoderate indulgence in alcoholics are very grave. In death reports alcoholics are credited with a very small proportion of the actual deaths recorded, but it is a well-known fact that, as a remote cause leading up to the immediate cause of death, this agent is largely responsible. Pollock says: "It ranks before phthisis (consumption) in its deadly effects on the human race"; and Medical Director E. J. Marsh, in his "Mortality Report of the Mutual Life," Vol. II, p. 115, makes the following observations touching various points in this connection: "The majority of deaths from alcoholism occurred under forty years of age, 90 per cent. under fifty, and none after sixty years, showing that the excessive use of alcohol as a habit is acquired at an early age, and no constitution can long withstand its destructive influence. Nearly 20 per cent. died within the first year of insurance, indicating that the applicants had probably concealed their habits of life by false statements to the medical examiner."

The doctor also called attention to the fact that these figures represent only the deaths resulting from the use of alcoholic drinks as a sole or direct cause, and are of little importance in direct comparison with the more numerous cases where life has been indirectly shortened; they do not represent the larger class in whom "chronic diseases of various organs and tissues have been produced, or a constitution thus debilitated has given way before an acute disease."

We might quote authorities without number to the same effect.

The following extract from the Registrar-General's report (quoted by Dr. Allan McLean Hamilton, in his work on nervous diseases) shows the probable duration of life in individuals who have lived temperately or intemperately, who have reached certain ages:

Having reached the age of	The temperate have an average chance of still surviving	But the intemperate have an average chance of surviving only
20	44.21 years	15.53 yrs., or 35°/$_0$ of the duration of life of the general population.
30	36.48 '	13.80 yrs., or 38°/$_0$ of the duration of life of the general population.
40	28.79 "	11.62 yrs., or 40°/$_0$ of the duration of life of the general population.
50	21.25 "	10.86 yrs., or 51°/$_0$ of the duration of llfe of the general population
60	14.28 "	8.94 yrs., or 63°/$_0$ of the duration of life of the general population.

What a penalty to pay for a literally short-lived pleasure!

Not only is alcoholism a cause of curtailment of the duration of life and a factor in the large mortality of insurance companies, direct as well as indirect, as we have seen, but as a corollary it is also the cause of a large percentage of the death losses in dollars and cents. This point has been conspicuously shown by the statistics of the United Kingdom Temperance and General Provident Institution of England.

For instance, quoting from "Parkes' Manual of Practical Hygiene," Vol. I, p. 308: "One section of this institution consists of abstainers another of persons selected as not known to be intemperate. The claims for five years anticipated in the temperance section were £100,446 (about

$502,230); but there were actually only claims for £72,676 (about $363,380). In the general section the anticipated claims were £196,352 (about $981,760), and the actual claims were no less than £230,297 (about $1,151,485). Not only this, but it would seem that the longevity of the abstainer was better seen by the amount of bonuses or dividend additions to the amount insured paid to each £1,000 (about $5,000) whole-life policy in the two sections for the same five years. The following table gives the profits allowed at every fifth age of entrance from 15 to 55, both inclusive, in the temperate and general classes:

LARGER DIVIDENDS IN TEMPERATE CLASSES.

Age at entrance.	Premium paid in five years.			Bonus added in temperance section.			Bonus added in general section:			Dividend benefits in the temperate class.
	£.	s.	d.	£.	s.	d.	£.	s.	d.	
15	83	2	6	61	1	0	35	10	0	75% larger.
20	93	6	8	65	0	0	37	0	0	73% "
25	106	9	2	78	10	0	40	0	0	72% "
30	122	1	8	74	0	0	43	0	0	73% "
35	139	19	2	78	19	0	46	0	0	72% "
40	162	5	10	86	0	0	50	4	0	72% "
45	188	10	10	91	18	0	54	0	0	73% "
50	226	5	0	104	2	0	60	13	0	72% "
55	284	3	4	122	14	0	71	11	0	71% "

The above is the record of one of the largest life offices of Great Britain, and which has been in business since 1840. Its mortality records have been most carefully kept and classified with the object of settling its financial obligations to its insured members on the basis of equity and justice. The result is an authoritative statement on this subject.

Long-continued and immoderate indulgence in the use of alcohol is felt in varying degrees in every part of the body. Having a strong affinity for water, it creates inordinate thirst when taken in the stomach, the usual consequence being a desire for more alcohol and with a repetition of the same result. It causes dyspepsia of the catarrhal variety with a resulting interference with a sufficient supply of food; it acts upon the liver by creating new interstitial tissue, which contracting, causes the hob-nail appearance so often spoken of in autopsies of alcoholics; it causes a fatty degeneration of organs, thus interfering with their functional activity. Another property of alcohol is to harden tissue, and we very often find such to be the case in the various parts of organization. The following diseases and conditions have been observed in this class of cases: Organic heart disease, especially fatty degeneration; a similar condition of the blood vessels; disease of the lungs, including consumption, and a proneness to pneumonia; kidney disease, particularly the variety known as Bright's disease, as well as diabetes, and the deposition of urinary salts, predisposing to calculus; degeneration of the eye; inability to sleep (insomnia) and other nervous conditions, functional as well as organic, such as epilepsy, paralysis, delirium tremens, insanity; loss or perversion of the moral sense and passions inducing frequent perpetrations of all the crimes in the calendar, including murder—and defrauding insurance companies, which is a crime frequently committed against the widow and orphan!

In a paper entitled "The Prevalence of Alcoholism and Its Influence on

Mortality," by Geo. W. Webster, in the *Quarterly Journal of Inebriety,* he quotes Drs. Kerr and Richardson, of England, as saying that 10 per cent. of all the deaths in England and Wales are due to alcohol. Drs. T. D. Crowthers, Hartford, Conn., U. S. A., estimates that 50 to 60 percentum of all inebriates die directly from that cause, and Dr. N. S. Davis, of Chicago, U. S. A., also estimates that 50 per cent. of all cases of chronic nephritis, cirrhosis of the liver, non-inflammatory diseases of the heart, cerebral apoplexy and deaths from violence, are due to alcohol. Undoubtedly much testimony of a similar character can be adduced.

It would be a good thing if alcoholism would end with the alcoholic, but so far-reaching is its influence, it is said by those who have made proper investigations that if a child were pro-created during a debauch it would almost surely be deformed mentally, morally or physically. Richardson ("Diseases of Modern Life") also says: "The solemnest fact of all bearing upon the mental aberrations produced by alcohol is that the mischiefs inflicted by it on man through his own act and deed cannot fail to be transmitted to those who descend from him, and who are thus irresponsibly afflicted." The offspring of drunkards are frequently idiots, insane, criminals, predisposed to many diseases, including consumption, and in general are far below the average in every way. If Spartan practices were now in operation we would hear less of these things than we are now compelled to; and we would have less of these hereditary consequences. These considerations are important as bearing on family history.

There is at present, and has been for a considerable time past, moreover, a tendency to consider an inordinate desire for alcoholics as a disease, and in some cases an incurable disease. Therefore, being a disease, it becomes a serious question whether alcoholics ought not to be "barred out" on the broad principle that a person with any disease is not an acceptable applicant.

What to do with applicants who are or have been intemperate is often a difficult question. If we knew the facts we could quickly come to a decision; but while the medical examiner is unable to secure them by reason of the tendency of the applicant and others to conceal them, habits in relation to the use of alcohol must be considered more or less an unknown quantity, and the action of the company must be accordingly.

If an applicant is a notorious drunkard the company will undoubtedly turn him down and call the agent to account. If he is an occasional drunkard or a periodical spreer, the same course should be pursued. It is the quiet drinker, the applicant who pursues the alcoholic habit in such a manner that his real relation to alcoholics cannot be actually determined, who will give the company the greatest trouble. We have seen that the disastrous effects of drink are far-reaching physically, mentally and morally. Such being the case, it is a question whether they have gone to those lengths, or to what degree they have arrived. We know that it is impossible to confine insurance to temperate people only. Companies cannot find enough of them to make up the general average. Therefore they must accept applicants who more or less indulge. Realizing this fact, companies, either before or after the issuance of policies, institute a rigid investigation into the habits of individuals, and by this means come pretty near the truth. Sometimes they are found intemperate, or even habitual drunkards when they have made a contrary statement in their applications.

In that case policies are sometimes recalled and canceled. Sometimes they are reported intemperate when they are not, but that will regulate itself. It is customary to write to the physician who examined the case to secure confirmatory or contradictory evidence. When detrimental reports by investigators are received the physician will usually reply, as it is to his interest as well as that of the company, that no applicant recommended by him is accepted as a risk or retained upon its books. It is a serious thing to decline an applicant on account of his habits. It may result in loss of reputation, on business or social standing, or insurance elsewhere. Therefore, companies, before taking the decisive steps, must be very sure that they are right in their decision.

A question is often asked: What do companies do with those applicants who have taken one of the numerous cures? This resolves itself into the question whether one who has become an habitué of alcohol to a degree that it has become necessary to go to a retreat of this kind has been cured. This is a difficult question to answer. Many very able men have been unable to do so. If alcohol leaves a permanently diseased record upon the victim, then he is uninsurable. Writers have shown that alcohol will do this if indulged in for any length of time. It may be that to go to a sanitarium is only a fad. We have met cases when this is alleged to be so. Generally, however, patients are sent there through necessity. How many are cured? It is impossible to say, but out of those who are said to be cured, it is alleged that only about 5 per cent. relapse. This is also an unreliable statement. I have seen a graduate, proud of his blue ribbon, and an advocate of the cure on all occasions, relapse. The fact is that there is an almost uncontrollable tendency to relapse and an overpowering thirst for liquor, and this is one of the most prominent and persistent symptoms. Grosvenor, in *The Quarterly Journal of Inebriety*, says "that the craving for alcohol is paroxysmal, and its victim, feeling the foreshadowings of the onset, makes deliberate preparations for its gratification. In many instances so intense is it that only incarceration will prevent it." Even Keely acknowledges this to be the case. In his work, "The Non-Heredity of Inebriety," he speaks of the remarkable power which alcohol has upon its victim and its effects. Repetition of the act of drinking alcohol, he says, creates an education of the stomach and its nerves. They are taught to experience a periodical craving for liquor, a debauch more or less prolonged, a succeeding nausea and disgust, a rejection of drink and a period of total abstinence. When this education or training, or inebriety is established, the action of the stomach and nerves become automatic. The meaning of this is that the nerves act after the manner of their education without prompting. They adopt this method or conduct as a part of their functions and when they act at all will exhibit this automatism or habit. The course of inebriety is now established. The conduct of the stomach and the nerves and of the person now exhibits the characteristics and the life of the inebriate. The stomach is an inebriate as is the individual. The result of this condition is periodical drunkenness, resulting from an appetite or a craving for liquor. But one of the most remarkable features of the inebriac education will cause the phenomena of inebriety automatically, even if the alcohol is abstained from. The attack will begin with loss of appetite, indigestion, and seemingly entire cessation of the natural functions of the stomach and nerves. If food is eaten it will cause the distress incident to indigestion and is usually rejected by the stomach. There is more or less pain in the gastric region, while the duration and general symptoms resemble an attack or a paroxysm of inebriety. The pain and indigestion will disappear if alcohol is taken at any time during the attack. But if the inebriate abstains by an effort of his will the natural course of the paroxysm will continue—which is disgust, nausea, a disturbance of the brain and nervous system, a sleepless night or two, then health will return and the natural order of things belonging to the period of sobriety will again be established.

Such is the picture as drawn by one of the foremost advocates of a cure for inebriety, which he says can be effected. But if by the use of alcohol there is established an automatism or habit which will return even when no alcohol is taken, which will be relieved by alcohol, and which automatism may be overcome if the victim has will power to do so—and the will power is so often impaired that it is totally destroyed—we cannot be convinced that a cure is always effective beyond peradventure in a confirmed alcoholic. We have quoted Keely as above so that his own idea of an alcoholic may be understood.

When we say that some companies will not touch these cases, you will not be surprised. Nevertheless we do not doubt that some of them are permanently cured. But how is the company to determine this in advance? There is the difficulty and therefore each case must be considered by itself.

In this connection it is interesting to note the views of Dr. Edward W. Lambert, as expressed in an article, "Personal Habits," in *The Medical Record*, Vol. VIII, p. 245. He says: "No question presents more difficulties than that relating to the personal habits of the applicant. As a rule, this question is answered more indefinitely than any other in the application: yet this is the question of all others which will give the most information as to the probable longevity of the individual, and it ought to be answered so definitely and clearly that he who reads may correctly understand the manner of the daily life of the individual. In order to give an appropriate idea of the personal habits of applicants for life insurance it would be wise to divide all persons of the same age into four equal classes, putting each individual into that class with which his personal indulgences place him:

"Class 1—Will include those who are careful eaters and total abstainers from alcoholic stimulants and malt liquors or who use the latter medicinally.

"Class 2—Will include those who use wine and malt liquors at dinner, who may occasionally indulge in food to excess, but who, as a rule, are as careful in their indulgence as Class I.

"Class 3—Will include those who are steady but moderate users of alcoholic stimulants, who are fond of the pleasures of the table, yet no one can say they are ever overcome by the appetite. This is the doubtful class, and it is a very deceptive one to life insurance companies.

"Class 4—Will include all those who are known to be given to excessive indulgences."

In consideration of these things it will be easy to conclude that applicants who use alcoholics in any form or to any extent are not looked upon with favor; and such in reality is the case. From whatever point of view they are considered, physically, mentally and morally, they are below the standard. The alcoholic influence pervades and insinuates itself in every direction, antagonizes well-meaning efforts and teaches a lesson in extra care in selection.

In conclusion, it is sometimes interesting or necessary to ascertain whether the applicant has indulged in the use of alcoholic drinks, independently of his statement, by an examination of the urine.

The following formula, known as the Anstie's test, may be employed. The test solution may be made by dissolving one part of bichromate of potassium in three hundred parts by weight of strong sulphuric acid. The urine is to be added, drop by drop, to the solution. If a bright emerald green color suddenly results from this manipulation it signifies that there is a toxic amount of alcohol in the urine. Quoted by Seguin in "Pepper's System of Medicine," Vol. V.

Alcohol may be detected in the breath of one who has been drinking by causing the expired air to pass through a solution of bichromate of potash in sulphuric acid, as suggested by Masing, when the characteristic green color will result.

PRESENT OR FORMER USE OF OPIUM, CHLORAL, COCAINE, BROMIDE OR OTHER ANESTHETICS.

Narcotics are those substances which relieve pain or nervousness, or produce sleep. Therefore, when the above question is asked, it is equivalent to inquiring, whether the applicant has been in a condition of pain, nervousness or sleeplessness when it has been necessary to employ these drugs for the purpose of relief, whether he is still using them, and whether he has formed a habit of using them.

If narcotics were employed legitimately, under the advice of a physician, and after their work has been accomplished and laid aside, there could be no objection to them, for, like everything else in the economy of nature, or art, they have their place and purpose. Unfortunately, there are those who, after experiencing the exquisite pleasure of relief from excruciating pain or harassing insomnia, assume the responsibility of prescribing for themselves or of renewing the doctor's prescription, and before they are aware of it a habit of "antomatism" is formed, which it is extremely difficult to break. In some instances the victim is never relieved from it, but resorts to narcotics under every possible excuse.

Opium, one of the narcotics mentioned, is mainly derived from a plant called Papaver Somniferum, which is cultivated principally in India, Persia, Egypt and Asiatic Turkey. Medically it is a stimulating narcotic and is employed for the relief of pain, sleeplessness and kindred conditions. Chemists have extracted about twenty different principles from opium, namely, morphine, narcotine, codeine and about seventeen others of minor importance. The most important of these is morphine. It is necessary to take a larger dose of opium than of morphine to secure a narcotic effect.

Opium, when used habitually, is taken either by eating, drinking, smoking or by subterraneous injection. It often requires great skill and tact on the part of the examiner to detect the habit, for the opium habitué will invariably endeavor to conceal it. Among the symptoms observed will be: Contraction of the pupils, sallowness of the complexion, nervousness, a prematurely aged appearance, dyspepsia, chronic diarrhea, paralysis and disease of the bladder. Search should always be made for scars made by the hypodermic needle when there is the least suspicion of the opium habit.

Taylor (*Medical Jurisprudence*) mentions an "alkaline solution of the miconate of morphia," called nepenthe—equal in strength to laudanum, which is sometimes used for its effects in this direction. It is undoubtedly the preparation referred to by Edgar Allen Poe, in the following quotation from "The Raven":

Then, methought, the air grew denser, perfumed by an unseen sensor,
  Swung by seraphim, whose footfalls tinkled on the tufted floor.
"Wretch," I cried, "thy God hath lent thee—by these angels he hath sent thee
  Respite—respite and nepenthe from thy memories of Lenore!
Quaff, O quaff this kind nepenthe, and forget this lost Lenore!"
  Quoth the raven, "Nevermore."

Chloral or chloral hydrate is a powerful narcotic very extensively used in this country. It is employed especially to produce sleep, but it will not deaden pain as will opium. The habit of using it is very readily formed unless due care is exercised, and the results are very disastrous.

Among other "narcotics" may be mentioned the following:

Ether is sometimes used as a substitute for alcohol. Its effects are more rapid and intoxication from it does not last as long as whisky. Its effects, if persisted in, are very unfortunate.

The chloroform habit is also sometimes met with. Beginning with the inhalation of the drug, the habit is gradually formed, "when it becomes an almost absolute necessity to the morbidly altered nervous system."

Bromides and its compounds, especially bromide of potassium, is very apt to cause a condition called bromism, resulting from long continued use of the drug in large doses. It is said to produce languor, weakness of muscles, indifference to everything; the walk of an habitual user of the bromides simulates that of a drunken man, finally it produces delirium and mania.

Cocaine is an alkaloid derived from the leaves of the shrub erythroxylon coca, which is cultivated on the slopes of the Cordileras of Bolivia, Peru and Colombia. It has anesthetic or benumbing properties in a high degree and is used quite extensively in surgery of the eye, throat, nose, ear, and generally in locations which are provided with mucous membranes. For a long time before it was adopted as a surgical measure the properties of the leaves were known to the aboriginal inhabitants of the above named countries, who used it especially for its stimulating qualities and for the property which it had for putting off the sense of fatigue and hunger, but, while it prevented hunger it did not prevent starvation. It was often used to excess, and its use grew into a habit, which is very easily formed. Finally, to quote from the *United States Dispensary*, "The effects of such a habit can be recognized by the victim's uncertain step, general apathy, sunken eyes surrounded by deep purple aureolies (rings), his trembling lips, green, encrusted teeth, excessively fetid breath with a peculiar blackness about the corners of the mouth." An incurable insomnia is apt to be developed, emaciation becomes extreme and death results in a condition of general marasmus, or wasting away, or by paralyzing the centers of respiration, although the heart will still beat a short time after respiration has ceased. Those who take it now take it for its agreeable effect, with a false idea that it will drown their misery, and "give them a happy issue out of all their troubles." But now, as then, the habit is soon formed and the victim becomes a hopeless invalid and frequently a raving maniac. We often see accounts in the daily papers of this class of mental and physical wrecks. Of course, any person who is known to have been or is now a victim to the cocaine habit cannot be considered in any sense an insurable life.

Antipyrine is a coal tar derivitive of considerable value medicinally, and, like other substances of its class, is employed for purposes which have already been discussed. A habit is soon formed for its use. It is a dangerous drug in large doses.

Absinthe, from the plant artemesia absinthum, or wormwood, is used extensively by the French. The *United States Dispensary* says in this connection: "Under this name, absinthe, a liqueur is much used in France, consisting essentially of alcohol mixed with volatile oil of wormwood and some other less active ingredients, especially oil of anise."

The symptoms attending the use of this liquor differ from those of pure alcoholic drinks and have been designated absinthism. "The characteristic symptoms of the latter, taken in excess, are restlessness at night with disturbing dreams, nausea and vomiting in the morning, with great trembling of the hands and tongue, vertigo and a tendency to epileptiform convulsions, in which the patient loses consciousness; galls, bites his tongue, foams at the mouth, makes facial grimaces and throws about his limbs, etc., but from which he finally recovers." The abuse of absinthe is said to be more dangerous than of alcoholic drinks in its purer forms. It is highly probable, the writer concludes, that absinthe is capable of producing immediately fatal convulsions, in quantities in which ordinary spirituous drinks, containing a similar amount of alcohol, might be taken with present impunity. Evidently the absinthe drinker is not a very desirable risk. It is well to make special inquiries in this direction in the case of a French applicant for insurance.

Hashish is a stimulating, intoxicating preparation from the tops and tender parts of the Cannabis sativa or Indian hemp. A very interesting account of this product is given in *Stillé's Therapeutics and Materia Medica* and *Appleton's Encyclopedia*, from which we condense the following brief note: "An electuary made of the resin with musk, essence of roses and other aromatics and an oleaginous extract made with butter or oil, are among the forms in which different Eastern nations prepare the hemp for intoxicating purposes. The effects of hemp are as various as of alcohol; in some it produces stupor, while in others it causes mental ecstasy and the most pleasurable visions. The habitual use of the drug is accompanied by both physical and mental imbecility. It was not used, as some think, for the purpose of throwing its victims into a state of madness or frenzy, who, during the continuance of its actions, run amuck and become promiscuous assassins. There was a sect in the eleventh century in

Persia which employed hashish or hasahischa in the initiation of its members. Its effects were so mischievous that its use was prohibited in the fifteenth century, but it was afterward permitted and brought on great degradation of its devotees. The persons held to be worthy of this bloody community (the Assassins) were subjected to the most seductive impressions while under its influence and were led to believe themselves the chosen instrument of a supernatural power. The chief of the sect alone possessed the secret of its use. The novice was invited to his table and there intoxicated with this substance. He was then carried into a delicious garden, where he enjoyed, as a foretaste of heaven, all those sensations and enervating delights which the prophet has promised to his followers—at last, overcome by them and the narcotic influences of the drug, he was removed to his former situation, and on awakening was persuaded by his wily tempter, as well as by his own recollections, that he had partaken of the bliss of paradise. It is hardly necessary to draw any conclusion in regard to the use of this substance; such applicants would undoubtedly be declined.

Narcotics, therefore, are dangerous drugs. They should never be taken without the advice and care of a physician. A habit or appetite for them is soon formed, and when formed the victim is an irresponsible being to a great degree, and is no longer a fit subject for insurance.

It is the custom of manufacturers of narcotic drugs, especially when in powdered form, to permit their employees to spend an hour or two at most at a sitting when manipulating them, with free ventilation, on account of danger of inhalation of the poisons. Such employments, therefore, are not desirable.

THE USE OF TOBACCO.

Tobacco, whose scientific name is Nicotiana Tabacum, contains narcotic qualities in the highest degree. It might have been included in the question relating to narcotics in general, but its influence upon the system is important enough to accord it a separate place.

The active principle is called nicotine, from a former French ambassador to the Court of Lisbon named Nicot. The percentage of nicotine varies in different varieties of tobacco. In the best it is said to be only 2 per cent., while in others it is placed as high as 7 per cent. or 8 per cent. These estimates are said to be too high by Duma, who claims that there is only one part of nicotine to 1,000 of tobacco.

Nicotine readily enters the body by absorption. If a sufficient quantity of tobacco is used it is equally poisonous by whatever method administered—by the mouth, the nose, as an enema, or by the skin. Three drops of nicotine are sufficient to kill if taken in the pure state.

Tobacco as a habit is familiarly used in various ways—by chewing, smoking, snuffing, rubbing the gums, dipping, etc. Of all these methods smoking is said to be the most injurious because more tobacco is used in this way than in any other and consequently more nicotine is absorbed. Cigar smokers not only smoke the cigar, but chew the end to a greater or less extent. Snuffing causes an irritation of the mucous membrane of the nose, and in many cases catarrh results, with its numerous consequences. Exhaling smoke through the nose is a pernicious practice. Habitual snuffers have a nasal twang to the voice, are frequently deaf, and generally present the appearance of one just on the point of sneezing. The nasal secretion will prevent nicotine from being absorbed to a very great extent, but if snuff is used in overwhelming doses, poison will result in a short time. It is said that one dram thus used has caused death. Large quantities of tobacco, if chewed, will result in the same event.

The manner of snuff-dipping and its effects are graphically described in the *Century* for February, 1891, in an article, "The Georgia Crackers in the Cotton Mills," by Clare de Graffenreid:

"The use of snuff is a withering curse. Hardened habitués smoke and chew tobacco and dip snuff and 'lip' the powder. The weed is applied with a softened twig, dipped into the snuff and rubbed on the teeth. All down the alleys of the factories are women and little girls with the inevitable stick in the mouth; it is their companion also in the street and at social gatherings, and scarcely laid aside for meals or sleep. The invariable signs, a carrot-like cuticle, livid lips, black-rimmed eyes, flabby, morbid flesh, proclaim the victim of the poison. Excessive indulgence in this stimulant often creates a desire for a stronger, and among the older women drunkenness is not uncommon. Indeed, snuff-dippers might be mistaken for inebriates, having the ashy, rickety, depraved aspect that follows a long debauch."

The effects of using tobacco will be felt in almost every part of the system, but excepting in a few instances these effects are classed as functional in contradistinction to organic, and generally pass away with a discontinuance of the cause. As above indicated, deafness will follow from extensions of the irritation to and into the tube running from the mouth to the ear (the eustachian tube). People have become blind from its use, the disease taking the form known as amaurosis—the eye not being able to receive impressions of objects, and in some cases even light. In tobacco amaurosis the optic nerve is destroyed by a process called "white atrophy." Out of thirty-seven cases of amaurosis collected by Hutchinson, thirty-one were caused by tobacco. We may also have double vision, paralysis in its various forms, numbness of sensation, shaking palsy or paralysis, agitans, dyspepsia, headaches; and not the least among the numerous affections caused by tobacco may be mentioned functional heart trouble. Companies are frequently obliged to postpone or refuse applications on this account. There may be palpitation, a quick heart-beat, resembling the tapping of a trip-hammer, an intermittent and irregular action not only of the heart but of the pulse, and oftentimes blood murmurs.

It is unnecessary to more than mention the fact that excessive use of tobacco will cause the most distressing form of heart affection—angina pectoris; and that constant pressure upon the lips by the stem of the pipe will frequently cause that form of cancer called epithelioma.

Cigars will occasionally act as carriers of disease. In finishing the cigar the operator will sometimes put the end in his mouth, at the same time the saliva is deposited upon it, and with it whatever disease germs, including syphilis, may be contained therein.

The filthy habit of smoking a pipe used promiscuously by many smokers is likewise a frequent cause of conveying from one person to another the above disease.

Many cigarettes are said to contain more or less opium—and the fascination of this form of smoking is due to a great degree to this fact. The cigarette victim is in danger, therefore, of opium poisoning as well as poisoning from tobacco. One of the largest tobacco manufacturers in this city refuses to make cigarettes on this account. Cigarette smoking will cause insanity. The victims of that habit have been known to commit suicide.

Those who work in tobacco are sallow and anemic, and frequently exhibit functional conditions to a marked degree due to the absorption of nicotine.

Companies are more or less lenient in their consideration of applicants who use tobacco. We see no reason, in the light of the above considerations, why thorough inquiry should not be made in these cases, as in respect of any other habit. At any rate, a thorough examination should be made of the heart and nervous system. The trembling signature of a tobacco user should always lead the examiner to make diligent investigations in the directions indicated.

D. G. A. Heron, physician to the City of London Hospital for diseases of the chest, and to the Mutual Life Assurance of Australia, in a paper read before the Life Assurance Medical Officers' Association of London in 1898, entitled "Some Extra Ratings of Healthy Lives," speaking of tobacco, said, like other good things, it is sometimes used in excess. It had happened to him to notice that the throats of certain otherwise healthy proposers were congested, such persons had acknowledged to smoking. The ill effects due to excessive tobacco smoking are very transient, and he did not know of a well-authenticated case in which permanent or material injury had been done to smokers by even what might be fairly called excessive smoking.

* * *

TONSILITIS FROM THE STANDPOINT OF THE GENERAL PRACTITIONER.*

By A. L. GRAY, M.D., Richmond, Va.,
Professor of Physiology, University College of Medicine.

There is no disease in the whole catalogue that confronts the practitioner oftener and perplexes him more than some of the forms of acute tonsilitis. Aside from the desirability of an early diagnosis for purposes looking toward its alleviation, we are called upon frequently to make a speedy differentiation from diphtheria for reasons of prophylaxis. That the diagnosis is not easy or even possible in the early stages in some instances without the aid of the bacteriologist, is to my mind a positive conclusion. In order to bring out important facts it is necessary to take up and discuss briefly the clinical varieties.

There are two forms usually described: the parenchymatous or suppurative and the lacunar or follicular.

The parenchymatous or suppurative form, which is commonly known as quinsy, after some violation of hygienic laws, usually exposure to cold or wet, comes on suddenly with perhaps one or more chills followed by fever, which may reach 105° or 106° F., rapid pulse rate and great prostration. During and preceding these symptoms the patient complains of aching in the throat and pain on swallowing. Inspection of the throat most frequently shows one side to be affected. The tonsil itself may be enlarged and reddened, but oftener the inflammation seems to exist in the peritonsilar tissue, and the whole pharynx on the affected side seems to be involved. Not infrequently involvement of the opposite side follows in rapid succession, and the space between the fauces becomes almost obliterated. In a large proportion of these cases the inflammatory process proceeds to pus formation, the abscess usually pointing toward the mouth.

This form is usually simple of diagnosis, and for this reason of less interest than the follicular or lacunar form. It is here that our skill is in some cases taxed to the utmost. Under this may be classed ulcerative, herpetic, pseudomembranous and necrotic forms.

Follicular tonsilitis is most common in adolescence and early adult life, though the infant and those in advanced life are not exempt. I have seen it in a child of two years and in the aged. In the latter, however, it is rare, owing to the disappearance of the adenoid tissue of the pharynx after middle life. Sex seems to have no influence, nor do I think the statement that rheumatism as a predisposing cause can be substiantiated. That the disease is due to bacterial invasion is most probably the correct theory. Whether it is due to a specific organism remains yet to be absolutely determined, but there are strong reasons for this belief. How else can we explain the fact that many members of the same household will be successively attacked, or, as I have known, persons visiting a family in which the disease has attacked some member, and in the course of a few days develop an attack? Another view, and the one most commonly accepted, is that persons surrounded by the same conditions of imperfect hygiene, are rendered similarly resistant to the invasion of bacteria which are found in the throat in health, such as the streptococcus and the diplococcus lanceolatus.

---

*Read before the Richmond Academy of Medicine and Surgery, June 25, 1901.

Let us consider briefly the pathological condition: In each of the above varieties we find an enlarged and reddened tonsil with more or less involvement of the crypts. The most common appearance is the exudation of a yellowish-white caseous material escaping in lumps or strings from the glandular crpyts. In some instances, however, instead of this material exuding it appears to have become encysted and calcified and is not discharged until after the acute inflammation disappears and the swelling begins to subside. Not infrequently two or more adjacent crypts become distended with this material forming, as it were, minute abscesses which rupture into each other, leaving a ragged depression or ulcer, from the bottom of which is poured this caseous exudate. Occasionally, also, patches appear, in color identical with those of diphtheria, but usually not so thick; nor do they possess the same tendency to spread to the surrounding parts, but attain a certain size in the course of a day, which they maintain. These may be found not only in the tonsils, but also on the adjacent structures. They are due usually to streptococcus infection.

Another pathological condition is the appearance of herpetic vesicles which rupture and leave small white ulcers. These may appear on the tonsil and adjacent parts as well. We also sometimes find a pale, milky-white, membranous appearance on the tip and margin of the uvula and pillars of the fauces, due to the leptothrix buccalis, a normal inhabitant, which is always ready to attack an abraded surface in the mouth, or to the oidium albicans or thrush parasite.

Considering the various pathological conditions which present themselves, and the signs and symptoms based thereon, there are unquestionably cases arising in which to make a correct diagnosis without the aid of the bacteriologist, is an absolute impossibility; and I am convinced that the statements of many physicians who claim to have treated diphtheria for years with scarcely a mortality, without the aid if antitoxin and even before the age of antiseptics, are erroneous in the extreme, and their glowing statistics apply not to diphtheria, but to some form of follicular tonsilitis. That a bacteriologic examination in the onset is impracticable in many cases cannot be denied, and in these our powers of differentiation are most severely taxed.

As to the modes of onset of the two diseases, they must be admitted to be in many instances identical. An initial chill or convulsion, subsequent rise of temperature in some instances to an alarming degree, with delirium accompanying, pains in the head, neck, back and joints, and great prostration, are common to both. We must look then to the throat alone to guide us in our prognosis and treatment.

The throat appearances in diphtheria, as told in most of our text books, leave us under the impression that whenever we find a grayish white or yellowish pseudomembrane on the tonsils which cannot be easily removed without abrading the surface, and especially if seen on the adjacent mucous membrane, a positive diagnosis of this disease must be made. This is manifestly incorrect. In cases of tonsilitis, which present an ulcerative appearance, the bases of these ulcers are at first covered with a dirty yellowish or grayish necrotic tissue, which may continue firmly adherent for several days. These ulcerations are by no means always confined to the tonsils, but may appear on the posterior pharyngeal wall. The cases which simulate diphtheria most strongly are those in which we have here and there patches of distinctly superficial pseudo-membrane produced by fungi or bacteria other than the Klebs-Loeffler bacillus. These patches will generally be found discrete, and the point of most value to us is that they do not rapidly spread at their margins in an even layer, but retain their size and shape, and when due to the leptothrix buccalis are very thin and milky-white in appearance. Whenever practicable, however, in any case in which there is a shadow of doubt, a competent bacteriologist should be called in at the earliest possible moment lest valuable time be lost and our labors be in vain.

As regards treatment: At the onset, it is well to give a brisk saline purge, treating the febrile symptoms with one of the antipyretics. I have found phenacetine, grs. v, codeine sulphate, gr. ¼, administered every three hours, to afford great relief from the headache; and salol in doses of three to five grains every four hours, the most satisfactory remedy for the aching joints.

In the parenchymatous form, in the early stages, the ice bag or a substitute, externally, and cracked ice given the patient at short intervals, or ice cream, will be found both agreeable and beneficial. After the inflammatory process has progressed, hot poultices or fomentations will be found more soothing and more apt to reduce the inflammation. Counter irritation in the form of tincture of iodine or hot turpentine stupes will be productive of much good. Scarification of the swollen parts will give great relief; and as soon as pus be detected it should be evacuated, preferably through the anterior surface of the soft palate, as this is the location at which the abscess usually points; and through an incision at this point, the abscess cavity can be readily cleansed without causing much discomfort to the patient.

In the follicular variety, if begun in time, ice applications, both internally and externally, may sometimes abort an attack. After it was established there is no better treatment than a spray of equal parts of hydrogen peroxide and water to clean off the exudate, and as a germicide, followed by a mixture of the tincture of ferric chloride and chlorate of potash in equal parts of glycerine and water to be applied to the tonsils and surrounding inflamed surfaces, with a camel's hair brush, four or five times a day. In the intervals, some demulcent application, as a spray of menthol or thymol in liquid vaseline, will lessen the difficulty in swallowing, and be found most grateful to the patient. The ammoniated tincture of guaiacum given internally and as a gargle, is most warmly recommended by many as a specific. Counter-irritation externally to the throat is desirable in this form also, and is probably best produced by rubbing with cloths sprinkled with oil of turpentine or spirits of camphor. The diet should be semi-solid or liquid, as it is swallowed with less difficulty, and does not tend to keep up the inflammation by mechanical irritation. Following this line of treatment, I have seldom found the disease to continue longer than three or four days.

It is my firm belief that in the near future, follicular tonsilitis will be found to be due to specific bacterium, and that its infectiousness will be firmly established; and I think we err when we allow our cases to be closely associated for any length of time with other members of the family or household. For while it is not a grave malady so far as mortality is concerned, I know of no febrile disease that renders its victim more miserable for the time being, and I think that by isolation for a short time, we may confine the disease to a single individual, and thereby avert much suffering.

901 East Clay street.

DISCUSSION.

Dr. Jacob Michaux agreed that a specific cause would probably be found for tonsilitis. The comparatively high temperature accompanying such a limited focus of infection seemed to argue a particularly virulent germ. He had obtained better results from the simple tincture of guaiacum, in small doses frequently repeated, than from the ammoniated tincture. Regarding tonsilar pus formation, he could not recall a collection existing in the gland itself. He had found some difficulty in keeping open the incision, especially in children.

Dr. J. S. Wellford disagreed as to the infectiousness of tonsilitis, for he had seen numbers of individuals who had several attacks, other members of the family escaping. In elderly people the tonsils were often absent due to destructive effects of abscesses; and he, therefore, was of the opinion that these abscesses were tonsilar and not peritonsilar, the pillars being still present. He thought that follicular tonsilitis in the early stage was easily diagnosed from diphtheria, the latter almost invariably commencing at one point and radiating therefrom, while the former involved a number of points at first separate, but later coalescing. In nine out of ten cases thorough cauterization of each point with nitrate of silver and the use of an astringent gargle were all that was necessary.

Dr. H. H. Levy said that follicular tonsilitis could be invariably diagnosed if seen before 36 hours had elapsed from the beginning of invasion, because of the isolated spots which represented exudation in the lacunæ. Notwithstanding Jacobi's statement, he had never seen diphtheria begin in spots, and to disprove it had had made often bacteriological examinations. The disease could be cut short by proper treatment. An ordinary case recovered of itself in five days, sometimes three days, if the throat were kept clean, as by a salt wash. Where there was headache, intense lilmb pain and high temperature he gave sodium salicylate. If the temperature were not high and pain not great he gave internally bichloride of mercury and tincture of iron; and he had seen a spray composed of bichloride of mercury, gr. j; chloride of ammonium, gr. xx, and water, ℥ij, used every hour or two, cause entire disappearance of the deposit in thirty-six hours.

Dr. R. D. Garcin did not believe in the bacterial origin of tonsilitis, his experience coinciding with that of Dr. Wellford. He did believe, however, that rheumatism was a predisposing cause. In his own case salicylate of sodium was the only agent that gave relief; and in another in which there was a temperature of 107° F., and the tonsils had been twice lanced, the remedy reduced it. His patients did not recover in five days, though the acute symptoms might subside in that time.

Dr. Levy said that he and most physicians believed that bacteria did cause disease; that a great many of them existed in the mouth, and that physicians ought to preach that under certain circumstances they might cause disease in various parts of the body. In a number of hospitals cleansing the mouth was preliminary to operation, because during anesthesia the patient might suck material into the lungs and produce pneumonia. The absolute strength of the body depended upon the health of the cells of the body, and that part which was weak fell prey under exposure to disease; that healthy did not.

Regarding its duration, he had never seen follicular tonsilitis last longer than five days.

Dr. Wellford rejoined that it was not necessary to explain inhalation pneumonia by a germ which might have remained dormant otherwise. Ether was a compound body, the decomposition of which, to obtain its oxygen, strained the lungs. Chloroform did not produce the disease because it did not contain oxygen. He contended that nine-tenths of all affections were due to ptomaines, not bacteria. If the cells were weak why could they not produce disease in the absence of germs?

Dr. W. F. Mercer stated that pus in the tonsils was rare. He had seen but one or two cases in which it had originated as the follicular form. In differentiating tonsolitis from diphtheria, it would be well to bear in mind that the exudate was more of a whitish-yellow, and that in every case the tongue was heavily coated, which, as a rule, was not true of diphtheria at first.

Dr. Gray, in closing the discussion, said that he had often noticed the discrete follicles mentioned by Dr. Wellford, and thought them a valuable point; but had never seen account of them as of diagnostic value, in any literature. As to the infectiousness of the disease, he had read an article since writing his paper, which stated that follicular tonsilitis was an acute infection having an incubation period of four days. He thought it strongly probable that this was true, but whether it was due to a germ existent in the throat in health, or one adventitious, no one could say. He believed that some individuals were predisposed to it; that by some hygienic violation a point of diminished resistance was produced in the tonsils; but without the added germ, the disease was impossible. He agreed with Dr. Levy regarding this. He had found that 90 per cent. of his cases of follicular tonsilitis never had rheumatism; but it would be strange if two such common affections were not coincident at some time.

A CASE OF CARDIOPULMONARY MURMUR ILLUSTRATING THE IMPORTANCE OF DIFFERENTIATION.

By P. MAXWELL FOSHAY, M.D., Cleveland, Ohio.

Not long ago a young man was seen who had been refused enlistment during the Spanish war because of a cardiac murmur discovered by the examining surgeon. Becoming somewhat alarmed at the prospect of having heart disease at the age of 18, he consulted four or five physicians, some of whom assured him that there was no murmur present, while one or two said that he had a murmur. I saw him nearly two years later, when he was 20 years of age. His habits were temperate, and he was very industrious. His general appearance was that of a robust, muscular youth. He was 5 feet 11 inches in height, and weighed 165 pounds. He had a chest expansion of 5 inches, from 32 to 37 inches. On inspection the chest was seen to be long and symmetric, and expansion showed no abnormality. On palpation the apex of the heart was found in the fifth space, 1 inch within the nipple line The impulse of the heart's systole was forcible, due no doubt to a well-developed heart muscle resulting from the subject's athletic career in college and from his subsequent labor in structural steel work. Nothing abnormal was found upon percussion, the heart not being enlarged. On auscultation the pulmonary sounds were found to be normal.

Anteriorly over the left upper thorax, from the first to the fourth rib and from the sternum to the mammary line, there was heard a soft blowing or puffing sound simultaneous with the rhythm of the heart. Auscultation anywhere in the precordial area developed this same sound, which, however, had its point of maximum intensity in the third interspace about 1 inch to the left of the left border of the sternum. Unquestionably it was a blowing murmur accompanying the cardiac systole. Upon careful and continued listening it could be ascertained that accompanying the cardiac diastole there could be heard, as it were, a sort of echo of the systolic murmur. It was hardly possible to conceive of systolic and diastolic murmurs of intrinsic cardiac origin having their point of maximum intensity at this one point. Then it was noted that the systolic murmur, especially, seemed to be very superficial and close to the ear or stethoscope. Upon auscultation at the apex the murmur could be heard only faintly. It was not transmitted into the axilla, and there was no murmur over the aortic orifice. The pulse was soft, full and regular, and the murmur was not of the character of an aneurismal bruit. Besides it was heard loudest over the base of the heart, and was not accompanied by dullness in that region. The subject was requested to take a deep respiration and hold it, when the diastolic murmur was observed to have wholly disappeared over the entire precordia, while the systolic murmur was greatly diminished. The subject was now directed to fully expel the air from the lungs, and then to hold his breath. Auscultation in the same location then failed to disclose the slightest murmur. The diagnosis was now complete and it was recognized that a cardiopulmonary murmur, due probably to an anatomic accident in the relative adjustment of the lung and heart, had caused the young man's refusal for the army and nearly his rejection for life insurance. The cardiac second sound was not accentuated.

This case has been related in very elementary fashion because mistakes of this character are constantly being made, to the very great detriment of the subjects, especially in the matter of life insurance. If an excuse were needed for presenting such a case I could do no better than to quote the opening sentence of the notable address of Stengel upon "The Significance of Systolic Murmurs Over the Apex and Base of the Heart," which was delivered before this society in March, 1898 (*Cleveland Journal of Medicine*, Vol. III, pp. 191-203). Dr. Stengel said: "I have decided to present this subject for your consideration because I have found it one that merits frequent discussion, rather than from any feeling that I shall be able to introduce new ideas."

Hoover,[1] Stengel,[2] Webster and others have fully discussed cardiopulmonary murmurs, but the subject is of great practical importance and merits frequent and free discussion in order that it may be more generally and clearly understood. The importance of differentiating these murmurs is not yet generally recognized, as is shown by the fact that even many treatises upon the diagnosis of heart lesions almost or quite ignore them. Among those who have fully studied these interesting murmurs there is as yet but slight agreement as to their significance and as to the mode of their production.

Greene in his recently-issued and excellent work on "The Medical Examination for Life Insurance" presents a novel view of this variety of murmurs. He writes: "One frequently reads of the cardiorespiratory murmur, but in most instances its close association with phthisis is not mentioned. The cardiorespiratory murmur is a systolic, whiffing murmur, heard best during inspiration and in the region of the heart border. It is commonly associated with pulmonary tuberculosis." My own experience has of course been limited, but I have met with a number of cases of cardiopulmonary murmur, and have yet to meet the first one that showed or has since developed any trace of tuberculosis. Still, the observation is that of a trained and careful clinician, and is therefore worthy of the most serious attention. Also Dr. Hoover in his paper notes the fact that in 1880 a similar observation was made by N. Weiss, of Vienna.

Stengel (loc. cit. p. 196) describes true cardiopulmonary murmurs, and notes that they are frequently mistaken for the so-called "cogwheel respiration" that accompanies pulmonary disease, and Dr. Hoover has noted the same interpretation. This I think must account for Greene's opinion of their relation to pulmonary tuberculosis.

Musser in his excellent "Treatise on Medical Diagnosis" writes as follows of this class of accidental murmurs: 'The cardiorespiratory murmur is fairly common. It is most marked in inspiration, but may be heard during both acts. It is systolic in time and is heard loudest at the apex, but I have often heard it along the left border of the heart, as high as the second rib, and in the axilla, and at the angle of the scapula. It is short and whiffing, and the sound gives one the impression that the heart is striking the lung." Musser's description of the character of the murmur is not so accurate as that of Dr. Hoover, who has said that its chief characteristic is that it seems to be superficial and close to the examining ear.

---

[1] *New York Medical Journal*, August 6, 1898. [2] Loc. Cit.

In the case herewith reported, as in others that I have seen, the murmur seemed to possess, as hinted at by Musser, the lighter characters of a sound produced by air in motion rather than the heavier ones of a moving and vibrating fluid. I may no doubt be mistaken in my observation, but it has seemed to me that this contrast in the quality of the murmur, together with its evident superficiality as noted by Hoover is in most cases sufficient basis for differentiation.

Musser's statement, that this variety of murmur is usually heard loudest at the apex, is somewhat at variance with that of others who hear it more frequently about the base and left border of the heart, and I have most often found it in the latter positions. Dr. Hoover has accurately stated that the most common location is over the conus arteriosus, because this portion of the precordial area enjoys the greatest degree of anteroposterior excursion.

I do not think the murmur in this case could have been produced in the pulmonic orifice, as it was so different in character from an intrinsic murmur; as it was unaccompanied by any increase of cardiac dullness, or by any change in the relative strength of the first and second cardiac sounds; as it was heard over healthy pulmonary tissue in a considerable area; and as it disappeared in complete expiration. The murmur of pulmonary stenosis is of course constant and only slightly affected by respiration. It is rare, and is accompanied by characteristic signs of intracardial disease. There was no thrill nor any palpable impulse of a dilated auricle, conus arteriosus, or pulmonary artery. It was not Stengel's systolic murmur of cardiac excitement, as adequate cause was not present.

One factor of undoubted influence in the production of the cardiopulmonary murmur in the case I have reported, as in other similar cases, was the powerful contraction of a heart well developed by long-continued athletic training and by subsequent daily muscular exertion.

The chief points in the differentiation of these cases which are to be borne in mind are, as already stated, the very apparent superficiality of the murmur and the fact that it disappears, in part at least, when respiration is suspended.

Under all circumstances, whether in the examination for life insurance or in the relation of patient and physician, the practician must carefully study every murmur heard over any portion of the precordia, employing all known means of differentiating functional, transient, and cardiopulmonary murmurs from intrinsic murmurs, before assuming the responsibility of pronouncing the case to be one of organic heart disease. In the examination for life insurance also, extreme care is demanded in order that the physician may not accept as first-class a risk impaired by intracardial disease, and that he may not forever deny the benefits of insurance to men whose only defect is an anatomic accident in the relation of lung and heart.

GAILLARD'S MEDICAL JOURNAL.

A MONTHLY JOURNAL OF MEDICINE AND SURGERY

Scientia et Veritas Sine Timore.

PUBLISHED BY THE NEW YORK MEDICAL PUBLISHING CO.,
220 Broadway, NEW YORK.

All communications, of either business or editorial character, should be addressed to Gaillard's Medical Journal, 220 Broadway, New York.

Articles for publication will be received with the understanding that they are contributed exclusively to this journal. Reprints will be furnished at actual cost, orders for which should accompany the manuscript. Authors of accepted articles may receive twelve copies of the issue in which they are published. Necessary illustrations will be furnished without expense to authors when suitable drawings or photographs are furnished.

EDITORIAL.

WILLIAM M'KINLEY.

In early manhood, our brave soldier; in the full flush of his years, our able statesman; at fifty-four, our President; at fifty-eight, our martyr. At all times a typical American and a gentleman. "It is God's way. God's will be done, not ours."

Anti-Vivisectionists in England.

According to the London *Spectator,* the anti-vivisectionists in England are even more rabid than their co-agitators on this side of the Atlantic. The following notice has been issued by the Society for the Abolition of Vivisection:

The majority of the contributors to the Hospital Sunday Fund presumably desire to relieve human suffering—not to inflict pain on helpless animals. Yet to a number of those hospitals which benefit by this fund laboratories are attached, where, at a great expense, vast hordes of animals are daily and painfully experimented upon.

The indifference to suffering which such experiments occasion in the minds of those performing them has, moreover, been clearly established by vivisectors themselves.

Persons who place humanity before science and who desire to relieve suffering and not occasion it, should therefore withhold their gifts on Sunday from the hospitals which have laboratories (i. e., torture chambers for animals) attached to them. Further information and suggestions on this painful subject will be gladly supplied by the secretary of the above society.

"Learn to Labor and to Wait."

It would be interesting as well as encouraging to many young struggling doctors to know how the successful men in the profession fared during their earlier years of practice. At a reception given by Dr. A. Jacobi to his friends, in the New York Academy of Medicine, on April 5 last, in commemoration of the fiftieth anniversary of his graduation in medicine, he read a paper, historical and reminiscent in character, upon "German Text-Books Half a Century Ago." Among other writers of that period, he referred to Hermann Friedrich Kilian, who was then Professor of Obstetrics at the University of Bonn. In speaking of him, Dr. Jacobi says:

"His text-book was learned and practical; its teachings were of the greatest service to me in the many hundreds of five- or ten-dollar cases I attended nearly half a century ago in the tenement houses of New York, not infrequently perched on a wooden stool all night in the company of the parturient woman and the bugs and roaches of her dwelling, waiting for the baby that I had to take, to wash, and to dress, for better, for worse."

Some years ago, the late Dr. William T. Lusk read a memoir of Dr. Fordyce Barker, from which the following is a quotation:

"It was my privilege, in 1853, while in attendance upon the old Anthon Grammar School in Murray street, to spend a few months in Dr. Barker's family. His practice was at that time small. It is needless to state to a body of physicians that neither popularity as a teacher nor distinction as an essayist influences the number of visitors in a practitioner's ante-room."

Reform in Woman's Dress.

We have often wondered whether or not reform in woman's dress will ever come about. It has often appeared to us that the torture of the female sex, in regard to keeping up with the so-called "fashion of the day," is on the increase. Why it is that ladies will thus subject themselves to this kind of inconvenience and pain, the prevention of the proper development of their bodies, and the impairing of their health, is a mystery, and yet, from year to year, there is ever ready plenty of young girls to imitate their seniors in the so-called "dress and fashion." When we come to examine the so-called fashionable dress of the lady we are surprised to find that they will endure so much discomfort and so much pain, merely to have it said that they are wearing fashionable things.

The different kind of corsets now worn by the fashionable lady we all know are injurious to the health in many ways. The compression of the internal organs and the lower part of the chest and upper part of the abdomen produce diseases that are easily recognized by most medical practitioners and certainly by all specialists in stomach troubles. We refer more particularly to the displacement of the abdominal organs. This disease, as shown by Glénard, a French observer, coupled as it is with indigestion, pains in the back, colicky pains, lassitude, weariness, headaches, and congestion of these organs, it ceases to be a wonder that the fashionable lady of to-day is very often a physical wreck. If men were to girth themselves in with corsets, the same as ladies do, they could not endure fatigue and but very little bodily labor. The corset is responsible in a large majority of cases of kidney trouble and the vast array of diseases which are often described as pelvic cellulitis. Indigestion and the pains occurring in the lumbar region are very often regarded simply as local expressions of rheumatism, while the pelvic trouble is sometimes treated by the family physician as a case of neurasthenia or nervousness. The results in these cases are disappointing to the physician, and to the patient the result is *nil*.

We have in mind now a patient who has gone through this fashionable tight lacing for many years, and her physician has treated her for nervousness, while a specialist in the diseases of women has made a careful examination and has pronounced a cystic ovary to be the cause of the trouble.

We find our fashionable female often exposing the upper part of the thorax and arms to all kinds of temperature in winter and summer. This often leads to sore throats, bronchitis and rheumatic troubles. They never blame the exposure for the trouble, but always lay it to the weather.

Another fault we have to criticise in the fashionable woman is the Chinese tendency to bind the feet. True, they are not bound with cords like the ultra-fashionable Chinese lady, but they are bound with small leather shoes with high heels planted under the instep, to make the foot appear short. Thus the whole weight or the greater part of the weight of the body is thrown forward and received upon the toes, the same as the Chinese lady walks upon the ends of her toes. We can readily understand how so many corn and bunion doctors flourish in this latitude when the small feet fashion is ever on the increase. We hardly know how this pedal fashion is brought about. Women seem to be afraid of large feet and no one will take the initiative to throw off this remains of a barbarian fashion and come down to an every day common way of dressing the feet.

Under the remains of savageism and apeing some of the islanders of the South Pacific, we find in the head dress now worn by the fashionable lady vast quantities of other people's hair, curled in among her own, some of these ladies appearing like South Sea Island damsels. With this vast quantity of hair a great amount of time is spent each day in preparing it for show. Pins, hair-pins and all manner of iron furnishings are used to keep this dead dress in place. These ladies are not comfortable, for when they are honest and tell you so, they answer that it is easier to be out of the world than out of the fashion.

Another ultra fashion which is fortunately on the decline, is the habit of wearing ear-rings. We remember many years ago of being in the Soumali country, and there seeing the so-called beautiful, dark-skinned damsels, the true representative of Africa, with their huge ear-rings dragging down the lobes of the ear until they were about three or four inches long. These damsels also had a ring inserted into the nose, but that fortunately has not yet come into fashion in our American cities, and we hope it never will.

Finger rings is another of the ultra fashionable things that we find our ladies indulging in. To support and carry all of these things daily wearies our women and tires them out. They are unable to do little more than to take a short trip to some store or some theater, and to rest out the next day after this trying ordeal.

If corsets could be consigned to the ash heap and women made to wear men's shoes, and a law be passed to make them cut short their hair, like a man, wear dresses that buttoned up and covered their thorax, and make it a misdemeanor to wear ear-rings and finger rings, we feel sure that the next generation of women would be longer lived and much happier than the women of to-day.

We trust that our ethical societies will try to put some of these reforms into practice, and before long we will see the reformed woman in dress suitable for her proper development.

Last, but not least, we hope to see the time when the trailing skirt, loaded as it is with mud, filth and disease, which is now carried into our homes and infect them, will also be relegated to the museums, and that no one will be allowed to appear in public with a skirt that comes below their ankles. If all these things could be brought about we would have far less disease, far less suffering, better health, and in the end more happiness.

THE TRANSMISSION OF MALARIA and Yellow Fever by Mosquitoes. In the August (1901) number of the "American Monthly Review of Reviews" there appears an interesting article by Mr. L. O. Howard, the Entomologist to the U. S. Department of Agriculture, upon the subject of mosquitoes as transmitters of disease. After reviewing the work of Celli, King, MacCallum and Berkeley in connection with the subject of the spread of malarial disease by mosquitoes, the writer states that the only mosquitoes which have been found to carry the disease are those of the genus *Anopheles*. The malarial germ seems to die in the stomachs of the commoner mosquitoes of the genus *Culex*.

With yellow fever so far as the investigations have gone, but one species of mosquito has been found to transmit the disease. This is the form known as *Stegomyia fasciata*, formerly placed in the genus *Culex*. This mosquito is a Southern form, and its geographic distribution corresponds very accurately with the geographic distribution of the disease. It is commonly found in our Southern States, and is abundant throughout tropical regions. It is a mosquito which readily accommodates itself to city conditions, and breeds freely in the cesspools, rainwater tanks and barrels, and places of a similar nature. It thus abounds in Southern communities. One of the most interesting differences in the habits of this mosquito and the malaria-bearing forms, and one which has some practical significance, is that while the malarial mosquitoes seem to fly and bite only at night, the yellow fever mosquito is popularly termed in many Southern regions the "day mosquito," since it bites in the afternoon as well as at night.

Practical anti-mosquito work has recently been undertaken in Cuba. General orders were issued requiring the universal use of mosquito-bars in all barracks, especially in hospitals, as well as in field service, where practicable. The drainage of breeding places, the use of petroleum on standing water in which mosquitoes breed, was directed, and the medical department of the army furnished oil for this purpose. It has resulted that Havana had less yellow fever during the present year than at any time in its history. Not a single case has originated in the city of Havana since May 7 last, and, incidentally, malarial fevers have been greatly reduced.

An intrepid medical writer flies in the face of Providence and says that perhaps, far off in the dim future, human beings may be hatched by incubation from the female ovum. His idea is to catch the ovum in some clever manner by means of a new-fangled speculum and transplant it to an artificial sac containing spermatozoa and retained in a blood-warm substance which can be supplied with proper nourishment and air during the stage of development. He does not say how he would catch the spermatozoa, but in this manner he hopes to relieve the daughters of Eve from the curse "in sorrow thou shalt bring forth children."

Spinal curvature among College Students. Dr. Jap W. Seaver, one of the directors and physical examiners of the Yale University gymnasium, reports a surprisingly large number of cases of scoliosis among American college students, particularly in those who have been ambitious for scholarship honors. The investigations were pursued at eighteen American colleges, and nearly 21,000 students were examined during the past five years. This number includes about two thousand men of the successive freshman classes at Yale. Dr. Seaver found that 5.6 per cent. of the Yale incoming classes were scoliotic. Similar data from other universities showed approximately like results, which led Dr. Seaver to the conclusion that scoliosis is the commonest physical deformity to be met with among educated American young men. Among the athletic class of students, on the contrary, the deformity was very rare.

Acute suppurative otitis media. The presence of acute suppurative otitis media is so common in febrile conditions, and its consequences are often so serious that it demands more attention from the general practitioner than is usually given to it. That the physician is often guilty of the sin of omission in this particular is shown by the large number of cases of chronic otitis media which drift into the hands of the specialist. The pain—usually an early and constant symptom of trouble in the middle ear—is disregarded, and the case goes on to suppuration and perforation of the membrana tympani. As a result of this the hearing is impaired; suppuration may continue for a long time and tinnitus is often present. The latter is a most distressing symptom and frequently baffles the skill of the otologist. Further than this, a chronic suppurative otitis media may lead to still more serious consequences; according to Gowers it is the most common cause of brain abscess (42.5 per cent.). In some cases of acute inflammation, perforation of the drum membrane cannot be avoided, but in many instances prompt antiphlogistic measures will at once ease the pain and prevent all serious consequences.

Book Reviews.

A TREATISE ON THE ACUTE, INFECTIOUS EXANTHEMATA. Including Variola, Rubeola, Scarlatina, Rubella, Varicella, and Vaccinia, with especial reference to Diagnosis and Treatment. By William Thomas Corlett, M.D., L.R.C.P.Lond. Professor of Dermatology and Syphilology in Western Reserve University; Physician for Diseases of the Skin to Lakeside Hospital; Consulting Dermatologist to Charity Hospital, St. Alexis Hospital, and the City Hospital, Cleveland; Member of the American Dermatological Association and the Dermatological Society of Great Britain and Ireland. Illustrated by 12 colored plates, 28 half-tone plates from life, and 2 engravings. Pages viii-392. Size, 6¼ by 9¼ inches. Sold only by subscription. Price, extra cloth, $4.00 net, delivered. Philadelphia: F. A. Davis Company, Publishers, 1914-16 Cherry street.

Particularly interesting is the opening chapter on the "Early History of the Exanthemata." It shows much careful research and study on the part of the author. The half-tone plates which accompany this book are very life-like and instructive. We have never seen better.

The chapters devoted to Variola, Vaccinia and Varicella are full and complete. Failure to make a differential diagnosis would seem not only inexcusable but almost criminal on the part of any physician after reading these chapters.

Indeed, we regard the author's diagnoses of the Exanthemata the strongest feature of his book. The work is one we commend to all practicing physicians, young or advanced, for a careful reading.

PRACTICAL SURGERY.—A Work for the General Practitioner. By Nicholas Senn, M.D., Ph.D., LL.D., Professor of Surgery, Rush Medical College, Chicago. Handsome octavo volume of 1,133 pages, with 650 illustrations, many in colors. Philadelphia and London: W. B. Saunders & Co., 1901. Cloth, $6.00 net.

No more valuable work than the above has ever been put forth. We all know Dr. Senn. We first knew him as a foremost and able surgeon in private life; then we knew him as the successful teacher and professor of surgery in the Rush Medical College, and lastly, we all know him as the foremost military surgeon in our country. This great work of Dr. Senn reflects his knowledge and records his experience as the practical operative surgeon. No work with which we are acquainted contains so much ripe experience and such sound advice. It is admirably written, profusely illustrated, and seems to give information in full on every point. The chapter on surgical technique is worthy of close study by every one. We are glad to note that Dr. Senn lays particular stress on the first aid to the injured, and in the chapter on gunshot wounds lays down as a rule, "never probe a bullet wound on the battlefield."

The skiographs of fractures and gunshot wounds are the best we have ever seen. The repair of bones is well written and well illustrated, and no one can help but admire the painstaking care shown in the many experiments undertaken to practically illustrate this part of his work. Military surgery and surgical emergencies are dealt with in detail.

Dr. Senn has devoted much of his time to abdominal surgery, and as a consequence the sections on this subject are quite full.

The work is divided into twenty-nine chapters, as follows: Chapter 1, Emergency and Military Surgery; Chapter 2, Traumatic Shock; Chapter 3, General Anesthesia; Chapter 4, Prophylactic Hemostasis; Chapter 5, Treatment of Hemorrhage; Chapter 6, Wounds; Chapter 7, Gunshot Wounds; Chapter 8, Rupture of the Urethra; Chapter 9, Fractures; Chapter 10, Special Fractures; Chapter 11, Compound Fractures; Chapter 12, Dislocations; Chapter 13, Exploratory Puncture, etc.; Chapter 14, Aseptic Catherization; Chapter 15, Emergency Operations on the Air Passages; Chapter 16, Empyema; Chapter 17, Peritonitis; Chapter 18, Appendicitis; Chapter 19, Intestinal Obstruction; Chapter 20, Enterostomy; Chapter 21, Colostomy; Chapter 22, Abdominal Section; Chapter 23, Enteroraphy; Chapter 24, Anatomicopathologic Forms of Obstruction; Chapter 25, Anatomicopathologic Forms of Obstruction (continued); Chapter 26, Strangulated Hernia; Chapter 27, Intestinal Fistula; Chapter 28, Resection of Joints; Chapter 29, Amputations and Disarticulations.

We bespeak for this work a place in every surgeon's library.

Transactions of the American Electro-Therapeutic Association. Complete account of Ninth Annual Meeting held at Washington, D. C., September 19, 20 and 21, 1899; also Tenth Annual Meeting held at New York city, September 25, 26 and 27, 1900. Illustrated. Pages xv-391. Size, $9\frac{1}{4}$ by $6\frac{1}{4}$ inches. Price, extra cloth, $2.00 net, delivered. Philadelphia: F. A. Davis Company, Publishers, 1914-16 Cherry street.

GAILLARD'S MEDICAL JOURNAL.

VOL. LXXV. NEW YORK, OCTOBER, 1901. No. 4.

THE MOSQUITO.

By ENNION G. WILLIAMS, M.D., Richmond, Va.,
Professor Histology, Pathology and Bacteriology in Medical College of Virginia;
Pathologist to Old Dominion Hospital, Etc.

I am not an authority on the mosquito, and the information I am about to impart is derived chiefly from the government reports and that valuable book, "The Mosquito," by Dr. L. O. Howard, our government entomologist. This should be widely distributed in every community where there are mosquitoes and malaria.

Like so many advancements in medicine, the mosquito theory of the transmission of disease has been subjected to the purging fire of ridicule and skepticism. The theory is still in its infancy; and may be modified in the process of further investigation, but the fact is established that the mosquitoes are concerned in the transmission of three diseases, or, in other words, that they are the intermediary hosts in the development of the micro-organisms of malaria, yellow fever and filariasis. Even if this were not true, knowledge of the mosquito might still be within the sphere of the practitioner who is concerned in the promotion of health and comfort as well as in healing the sick. Who can deny that the common culex with its proclivities for sucking human blood, is not a disturber of the peace and a public enemy, as well as her sister—the murderous, villain—the anopheles? A member of the Academy is absent to-night because an abraded mosquito bite furnished an open door to the entrance of pyogenic bacteria.

It is interesting to know that the relation between mosquitoes and malaria was first suggested about twenty years ago, by an American physician, Dr. A. F. A. King, and first demonstrated by an Englishman, Dr. Ross; and later on, by the Italians, Bignami, Grassi, and Bastianelli, and the German, Koch.

There are about 250 known species of mosquitoes, of which only about thirty have as yet been found in the United States. They are very widely distributed. The gold-seekers of Alaska have as great stories to tell of their numbers and ferocity as the pleasure seekers of the Jersey coast. A gentleman recently wrote from Alaska that they "existed in countless numbers, driving us to the verge of suicide and insanity." It is said that "in Lapland, their numbers are so prodigious as to

---

Read before the Richmond Academy of Medicine and Surgery, Sept. 24, 1901.

be compared to a flight of snow when the flakes fall thickest; or to the dust of the earth. The natives cannot take a mouthful of food, or lie down to sleep in their cabins unless they are fumigated almost to suffocation. In the air, you cannot draw your breath without having your mouth and nostrils filled with them." Indeed, some of the mosquito stories vie in point of credibility with the proverbial fish stories. Perhaps, the fact that three of the four stages of their life are spent in water, would justify one in speaking of mosquito stories as fishy. The most classical and historical account of the effects of these insects is that given by Theodoretus, who said that when Sapor, King of Persia, was laying siege to the town of Nisibis, his army—men, elephants and beasts of burden—were attacked by a plague of gnats, compelling him to raise the siege and putting his army to rout.

The life history of the mosquito is divided into four stages—the egg, the larvæ and the pupa, and the adult mosquito. Each stage is distinct, and is brought about by a sudden transformation. The new form comes from the shell of the previous form. The eggs are laid upon the water about 200 to 400 at a time. The larvæ and pupa live in water. They are, however, true air breathers, and have to come to the surface every minute or two to breathe. The length of a generation depends upon the temperature and other surroundings: Egg stage, eighteen hours to three days; larval, seven to sixteen days; and the pupal stage, two to five days. The average combined life of the three stages is twenty-four days. They pass the winter as adults. Hibernating mosquitoes may frequently be found during the winter months, on the walls of barns, in cellars and garrets, beneath large leaves of trees, as the magnolia, and clustering in sheltered places beneath the eaves and in evergreen vines.

The mosquitoes are, normally, vegetarian in their diet, and do not at all require blood for their sustenance. Only a small proportion of them ever have an opportunity to satisfy this depraved taste, for countless numbers of them live and die in swamps which warm-blooded animals never penetrate; and, moreover, they are found in the uninhabitated regions within the Arctic circle.

The *genara* with which we most have to do are the *Culex* and *Anopheles*. The males of both families are readily recognized by the antennæ, which are densely covered with long hairs, analogous to a bushy mustache; in the female, the hairs of the antennæ are short and very sparse. The mouth pieces of the male are not developed to the same degree of perfection for boring the human cuticle as are those of the female. They could not draw the blood if they would. They are, therefore, harmless, and the females are the members of the family who use their mouths most effectively, a not inhuman characteristic, though not a commendable one.

Comparative Description of Culex and Anopheles.—The *eggs* of the Culex are found in an irregular raft-shaped mass which is usually something like a pointed ellipse—somewhat convex below and concave above—all the eggs standing on end and closely applied side by side in from six to thirteen longitudinal rows with from four to forty eggs in a row. The mass is about a fourth of an inch in length, and gray-brown in color. The eggs of the Anopheles are scattered loosely upon the surface of the water, each egg lying upon its side. They are not attached, except that they naturally float close to each other. They are usually from forty to 100 together.

Larvæ of the two forms differ in their structure, food, habits and customary position in the water. That of the Culex has a much larger head than that of the Anopheles. It spends much of its time feeding at the bottom; and when it is at the surface, it holds its body at an angle of 45° thrusting up through the surface film its air tube which projects from the body near the tail. The larvæ of the Anopheles habitually remain at the surface. They hold their bodies parallel with and immediately below the surface film. The long fringe of the mouth parts of both species work violently and continuously, and cause a constant current toward the mouth, of particles floating on the surface of the water which thus gradually converge to this miniature whirlpool and enter the alimentary canal. It has never been observed that male mosquitoes sing.

Pupæ of both forms breathe by means of tubes resembling ears on the top of their head. The pupa of the Culex has not so large a head and hangs more vertically than the pupa of the Anopheles.

The characteristic points of difference between the adult Anopheles and Culex are the presence of dark or brownish spots on the wings of the former, due to thicker growth of fine hairs in these regions. The palpi are as long as the proboscis. Thus observing the Anopheles with the unaided eye or with a hand magnifying glass, we see five projections from its head, the central one the proboscis, and on either side the palpi of equal length with the proboscis. External to these are the hairy antennæ. In the Culex, the palpi are only one-third as long as the proboscis. Another point of difference is that the song of the Anopheles is several notes lower than that of the Culex. Dr. Howard facetiously remarks that an interesting parallel to this is the fact that the villain in the play usually has a base voice.

It is said that in the resting position of the Anopheles, the body and the proboscis are in a straight line and almost vertical to the surface; but that the body of the Culex rests parallel with the surface and the proboscis is bent downward, giving the insect more of a humpbacked appearance.

Mosquitoes breed wherever there is standing water, as swamps, rain barrels, cisterns, holes in the ground, old tin cans, broken bottles; and, in fact, any place where water stands for two or three weeks should be looked upon as a breeding place. The larvæ of the Anopheles have a special fondness for pools near a river bank and among the rocks where there are water plants. I have not been able to find any larvæ of the Anopheles in rain barrels or small pools in the city, but I did find some among the rocks on Belle Isle. Mosquitoes do not thrive in salt sea water, only in fresh, or brackish, water.

Knowing now the life histories and characteristics, we can intelligently direct our efforts at their extermination. Among the natural enemies of the mosquito are dragon flies. Not only as adults do they capture and devour adult mosquitoes, but their water forms feed upon those of mosquitoes. Larva and pupa furnish juicy morsels to the other forms of animal life that dwell in the same pool. Little fish eat them. It was interesting to find, while recently looking among the rocks at Belle Isle, that in those holes where I found other forms of animal life, there were very few or no larvæ, whereas in other pools where there was not other animal life, they flourished abundantly. Leather-winged bats and other birds feed upon them. Perhaps the ladies would have less antipathy to the bats that set up such a commotion by their presence in a parlor on a summer's evening, if they knew that the bat's chief occupation in life was to make the insects "cease from troubling."

Many drugs have been used to keep away mosquitoes: Camphor rubbed upon the face or hands, or a few drops put on the pillow at bedtime; oil of pennyroyal and the oil of lavendar have this effect. Among the remedies for bites have been recommended glycerine, indigo and household ammonia. An old-fashioned way to kill mosquitoes is by means of a tin cup containing kerosene, nailed to the end of a stick long enough to reach the ceiling. The cup is place under a mosquito, which drops into the oil and dies.

The proper way to fight mosquitoes is by measures preventing their development. This is accomplished by abolishing the breeding places and by destroying the larvæ. In nearly every locality, these measures are feasible and practicable, and there is no necessity for mosquitoes. Their presence may usually be attributable to ignorance or negligence on the part of the community or individual. The three main preventive measures, as Dr. Howard says, are the draining of breeding places, the introduction of small fish into fishless breeding places and treatment of such pools with kerosene. Kerosene on the water prevents the larvæ and pupæ from projecting their air tubes through to the surface, and obstructing the tubes causes their death. These are three alternatives, any one of which may be used where there are reasons against the trial of others. The quantity of kerosene necessary is approximately, one ounce to fifteen square feet of water surface; and ordinarily, the application need not be renewed for one month.

Life History of the Malarial Parasite in the Mosquito.—As you are all familiar with the development and the life cycle of the malarial plasmodium in the blood of animals, I will describe only the cycle of development of this parasite outside the human body, which, so far, has been found to occur only in the body of the mosquito of the Anopheles variety. Instead of the parasite multiplying by the formation of spores as in the blood, the parasites, which are taken into the stomach of the Anopheles, develop into two forms, one having projections or flagellæ, the other without them. The flagellæ break off from the one and fuse with the other form. The union of the two constitutes the fertilization of the organism. The fertilized organism now attaches itself to the wall of the stomach and penetrates the inner coat, locating itself just under the outer muscular coat of the stomach. It now increases rapidly in size, until, eventually, it becomes five times as large as at first. It is now known as a *zygote*. Upon the surface of the zygote clear spaces which are called centromeres, begin to appear. These centromeres are soon surrounded by minute, short, dark lines which under a very high power of the microscope, are seen to be spindle-shaped cells known as blasts. The blasts increase in size until they fill the entire zygote, obscuring the centromeres. Then the zygote bursts and the blasts are liberated through the muscular wall of the stomach into the body cavity of the mosquito. The blasts are very active, and penetrate into the tissue of the salivary duct, and so into the proboscis of the mosquito. With the saliva or poison, they enter the blood of the next warm-blooded animal that the mosquito bites. The time required for the development of the blasts in the mosquito is about twelve days. It is supposed that the blasts enter the red blood corpuscles, and as the hyaline form of the malarial plasmodium, the development proceeds.

THE PARASITES OF THE MALARIAL FEVERS.

By THOS. C. CRAIG, M.D., Surgeon U. S. Navy (Retired).

It is now universally agreed that the cause of the malarial fevers is the presence in the blood of several different parasites, all closely related to each other, but each one distinguished by certain morphological development, and under certain conditions by the phenomena which they produce.

In 1880, Lavaran discovered the cause of these fevers, and since that time observers in many parts of the world have been industriously working at the subject, confirming what he then announced, and perfecting more and more the technique for diagnostic purposes. In these investigations the great fact has been proven that the malarial fevers in all parts of the world follow the same types, only differing in virulency in the different latitudes. More and more light is being gradually thrown on these diseases, and it is probable that no one disease has had more work expended on it then these have had, until now they are far better understood than ever before.

THE FEVER.

When we come to examine into the phenomena of most fevers, we find that they are due to certain toxins circulating in the blood, and these toxins by their action on the different centers cause a train of symptoms which we designate by the term febrile. How these toxins act is as yet not understood, but many of them are capable of producing profound changes in nutrition, excretion, and the physical manifestations of vitality. They all give rise to toxemias, and pre-eminently among them is the toxemia of the malarial fevers. That the manifestations of the malarial fevers are due to certain parasites no one denies. The life histories of these organisms are perfectly well-known, and each one has been accurately described in all the stages of its development, so far as its growth in the blood is concerned.

THE PARASITES.

These malarial parasites are described as small, colorless, and almost transparent ameboid bodies, 8 to 9 μ in length, by about 3 μ in diameter, In a later stage of development, small, rounded, pigment granules appear in them. At first, these granules have no seeming regular arrangement, but appear scattered around the periphery of the organism; later they collect in the center of the parasite, and finally are found in the serum. Attempts have been made to cultivate these parasites on artificial culture media, but, so far as I have been able to learn, without success as yet.

THEORIES OF INFECTION.

The life history of these parasites, outside of the human body, has been ably investigated by several persons, conspicuous among whom is Dr. Manson, of London. He has advocated the theory that the malarial parasite had a resting period outside of the body at certain times in its development. He examined the blood from mosquitoes, which had been allowed to feast on persons affected with malaria, and found certain remains or spores, as he thought, in the pectoral muscle of the mosquito; and it was his belief that these infected mosquitoes, having finished their life course, often fell into stagnant water, or into moist places, where they deposited their eggs, then died; the young brood of children mosquitoes coming along fed on the old remains of their mother, and thus ingested these spores which he had observed, and that these mosquitoes coming in contact with the human being punctured the person's skin, and carried on their probosces or suctorial apparatus some of these spores, which in their turn developed into rejuvenated malarial parasites. Be this as it may, the fact remains the same, that where we find malaria, we find the mosquito.

Lately there has been some interesting investigations regarding infection in the malarial diseases through the medium of the mosquito. Three or four years ago, Major Ross, a surgeon in the English army, then stationed in India, began a series of investigations to determine what rôle the mosquito played in the infection of malaria. His observations were published in the London *Lancet* at the time, and since that time Surgeon Ross has been industriously working at his theory, and has been developing facts which may ultimately prove of immense interest. Surgeon Ross bred mosquitoes, and then had them fed on a patient who had malarial fever, and whose blood showed the malarial parasite. He was always able to recover from the blood of the mosquito the same kind of malarial parasite that had been found in the blood of these patients.

Recently these experiments have been ably investigated and amplified by the Italian naturalist Grassi, and more definite conclusions reached. Ross had already come to the decision that the malarial parasite was conveyed by a certain species of the mosquito, to which he applied the name "Dappled Winged" mosquito. Grassi went into this subject very extensively, and in his researches found that in certain regions where malaria was prevalent there was constantly present a certain species of the mosquito; and that in other areas where there was no malaria this particular species was absent. It was found that in the malarial areas a large mosquito of a certain species, was always found; it was further ascertained that this species and the one Ross had described were very similar in appearance, and were recognized by certain spots on their wings. Ross had called them "Dappled Winged," while the ones Grassi had singled out were known by four spots on their wings arranged like the letter T. This particular mosquito has been named Anopheles Claviger, and is very widely distributed in many parts of the world. This particular mosquito sometimes bites during the daytime but more often at night, its principal attacking time being just before and a short time after sunset. Bignami, another investigator, obtained this particular species of mosquito from a certain malarial area, where a certain type of the fever was known to be endemic, and exposed a non-malarious patient to the bites of these mosquitoes. After several negative trials at first, a new supply of mosquitoes was procured, and the summer-autumn type of fever was induced; the malarial parasites being found in the blood of the patient.

Experiments have now been made with this particular species of mosquito, in which it has been allowed to bite a patient with a particular form of fever, and then was made to bite a healthy person, and the disease has thus been produced in the previously healthy individual. Certain types of fever have thus been transferred from one individual to another. It has been stated that a single bite has been sufficient to inoculate the disease. Now it becomes interesting to know how these strange malarial parasites are conveyed from one individual to another. Manson's idea was that they were conveyed on the proboscis of the mosquito; but these later investigations have shown that the parasites were first taken into the stomach of the mosquito; they then gained entrance to the intestinal canal of this insect and there developed to some extent; in the meantime they partly penetrated the intestinal wall, and by the time they had arrived at the sporulating stage they had obtained entrance into the body cavity of the mosquito. They were then undoubtedly taken up by the lymphatics, and gained entrance to the vascular system. We next hear of them being found in the salivary secretion and salivary gland of the mosquito, in the form of spores; and it is supposed that in this condition they are inoculated into the individual by the bite of the mosquito. A certain period of incubation ensues before the final development of the disease.

Experiments have also shown that these parasites will not go on to development when the temperature in which these mosquitoes are incubated sinks below 57° F., but that the best results are obtained when the temperature is about 86° F. It was thus under these conditions that the cultivation of these parasites in mosquitoes were observed and studied.

An interesting fact was developed during these observations. Freshly incubated crops of this particular species of mosquito were allowed to bite healthy individuals, and were also swallowed by healthy persons, but in both instances the results were negative. The question then arose, why can this species give rise to malaria at certain times and not at others. These investigators found that it was necessary for the Anopheles Claviger to previously bite a malarial infected person before it was able to transmit the disease.

Another interesting question presented itself, viz.: Why is it that the malarial fevers appear annually in certain places? These investigators try to explain this by saying that "in the course of the winter the parasites in anopheles die out, and that infection is conveyed in the spring by the insects biting persons who suffer from relapses of fever from the previous season, and then biting healthy persons after the sporozoites have developed." It may be possible that this is the true explanation, but other modes of infection may yet be discovered. It may be possible that malarial infected mosquitoes, dying and then drying, are blown about as dust, and we inhale them; or falling into the water, we drink them, and infection ensues.

Experience has shown that in areas where the supply of drinking water is obtained from deep-driven wells, malarial diseases have decreased to a large extent, where formerly the sub-soil water was used, and the malarial diseases were very prevalent. Various other theories have been advanced as to the way the malarial organism gains entrance to the human system.

One of the most plausible is that it is introduced by drinking water. In certain sections of our Southern States, notably in North Carolina, large areas of the country were almost uninhabitable, so prevalent were the malarial diseases. The health authorities made investigations and became convinced that the cause of all this sickness was due to the use of surface sub-soil water. In many places deep-driven wells were substituted for the former shallow ones, and the result was a greatly decreased number of cases of malarial fever. The drinking water theory was very nicely illustrated about a year ago in the person of a medical officer on one of our ships in the West Indies. He was called on to board a vessel to see some of the crew, who were suffering from malarial fever. In searching for a cause for this sickness, he was informed that nothing had been taken aboard ship except some drinking water, and that none of the men had been ashore. The doctor inadvertently took a drink of this same water, with the result that in a week thereafter he had a case of intermittent fever.

It would be quite confirmatory to know whether or not this medical officer had been bitten at the time of his visit by the Anopheles Claviger, which had previously bitten one of these malarial infected sailors, but at that time the mosquito theory of infection had not been so far developed, the experiments having only been brought out within the past six months.

CLASSIFICATION OF THE MALARIAL FEVERS.

It is now quite well established that all the malarial fevers may be placed under two grand heads.

The first group comprises the quartans and tertians. "These two types of fevers are usually found together in districts affected by mild malaria throughout the whole malaria season." "They are only prevalent from the close of winter to the end of spring in the regions where malaria is severe, but they may also be found in the summer and autumn along with the so-called summer and autumn fevers, but much less frequently than these latter; they are often observed in persons coming from parts of the district relatively less unhealthy." Clinically speaking, they all resemble each other in the regularity of their development, and in the fact that they often cease spontaneously. Complex fevers may ensue, such as double tertian, double and triple quartan fevers, and very rarely subcontinued fevers, but malignant fever never." These two types of fever are produced, each one by the amebia-like bodies which differ essentially one from the other.

The second group of fever comprises those which constitute the summer and autumn endemics, in the districts of severe malaria. They are only rarely observed in the regions of mild malaria. "Two fundamental clinical types belong to this group. A quotidian type which must be distinguished from the quotidian caused by the doubling of the tertian of the first group, and form the rare form of quotidians of quartan origin; and a tertian type, the summer and autumn, or malignant tertian." The regular course of these fevers often becomes confused and intricate to the extent of its being difficult to unravel and make out the original type of fever. To this last group belong all the cases of malignant malarial fevers. Thus, then, these fevers may be arranged under these heads:

"I. Mild malarial fevers prevailing in winter and spring, comprising the quartan, the double quartan, and some quotidians of quartan origin, fevers due to the life cycle of a parasite, which is completed in three days.

"The tertian or double tertian, some quotidians of tertian origin, very rarely sub-continued fevers, due to the development of a parasite which takes two days to mature."

"II. Severe malarial fevers of the summer and autumn, comprising:

A. The quotidian, caused by the life cycle of an ameba, which is matured within twenty-four hours.

B. The malignant tertian due to the life circle of an ameba, which is matured within forty-eight hours. We now come to examine into the morphology of the individual parasites.

1. The quartan type.—This is caused by a parasite which has been called Ameba Febris Quartanæ. When seen in the blood of a person soon after the period of apyrexia has set in, the young hyaline forms appear in red blood discs, as small, irregular, almost colorless masses, with small particles of pigment scattered around the periphery, having a sluggish movement. These ameba-like bodies gradually increase in size, until they almost entirely fill the corpuscle, at the same time the hemoglobin is consumed and the particles of pigment increase in size and amount. "At the end of from sixty-four to seventy-two hours, the parasites have reached their full development." They then appear as round or ovoid bodies, somewhat smaller than a red blood disc; and around their periphery may often be seen a very thin circle of the remnant of the blood disc. A short time before the malarial paroxysm begins, the pigment granules, which up to this time have been arranged around the periphery, begin to collect in the center of the organism. The pigment seems to be impelled toward the center in a regular and orderly manner, as though by a constant and organized force; that is, starting from the periphery it follows what seems to be the regular routes, and to give a "star-shaped" arrangement to this pigment. The pigment all finally collects in the center of the parasite. At this stage of the cycle minute striations begin to show around the parasite, and soon we have segmentation taking place, the organism splitting up into from six or eight, to ten or twelve, pear-shaped leaflets, each containing a central more refractive point or nucleus. These become the smaller extra-corpuscular hyaline bodies, and are ready to commence the development of another cycle of growth.

2. The tertian type. This is caused by a parasite which has been called the Ameba Febris Tertianæ. The earliest forms seen are just as in the quartan type, small ameba-like bodies in the blood serum or in the body of blood corpuscle. This parasite differs from the preceding one by the fact that it is endowed with more motion, with the power of throwing out pseudopodia in different directions, which often give it a very irregular

appearance. More than one of these hyaline bodies may enter a blood corpuscle, as many as three or four having been seen in one corpuscle. These hyaline bodies continue to grow, and just like the quartan parasites consume the hemoglobin, and develop pigment. The pigment in this parasite is scattered about with no seeming regular arrangement, and is often observed to have an intense molecular or boiling or swarming motion. This pigment is reddish-brown in color, while that of the quartan parasite is almost black. As the parasites approach maturity this pigment become less motile and tends to arrange itself in a band around the periphery of the parasite. This organism often grows to the full size of the corpuscle, nothing being left except a slight band around the periphery of the dics. Sometimes the blood disc appears larger than the normal, and seems to have a swoolen or stuffed appearance. In from thirty-six to forty-eight hours segmentation takes place, just as in the quartan parasite, but the number of segments are more numerous, numbering from sixteen to twenty. These spores, escaping from the blood corpuscles, flow free in the blood plasma, and soon entering other blood discs, recommence another cycle of development. Neither in the quartan nor tertian do all the parasites go on to maturity, but many of them stop short of segmentation, and float in the serum as large pigmented, intra- and extra-corpuscular bodies, some of which may take on a change not very often seen, viz.: flagellation, in which minute pseudopodia are thrown out, endowed with a wonderfully active motion; these at times become detached and float off by themselves. This segmentation of these parasites, as indeed with all the malarial parasites, is completed a little before, or co-incidently with, the commencement of the paroxysm of fever; hence a general law has been evolved which is: "The beginning of each paroxysm coincides with the maturation of a generation of parasites."

Thus, then, with these two parasites, one may notice the following differences: A. Differences in the cycle of evolution; B. Differences in the ameboid movements; C. Differences in the mode of action of the parasites as regards the substance of the red blood corpuscles; D. Differences in morphological characteristics; E. Differences in segmentation so far as regards the number of spores formed.

The next parasite to which we shall call attention is the estivo-autumnal, or summer-autumnal one. This is the one to which the rebellious, severe or malignant malarial fevers are due. Thus, under this head we have our well-known remittent fever, or as it is sometimes called, bilious-remittent fever. Systematic writers divide these fevers up under such sub-heads as these:

"A. Remittent quotidian, in which the temperature ranges from 100° to 104°, remitting to 98.6° but only for a short time, to be succeeded by a rise in temperature. B. Remittent tertian, where the fever remits every forty-eight hours, but the regularity is not constant. C. Sub-continued fever, in which the fever continues for eight or ten days, the temperature varying from 102.2° to 104°, toward the twelfth day a more marked remission takes place, and the fever becomes an intermittent quotidian. D. Remittent-intermittent fever. E. Intermittent fever with relapses. F. Remittent typhoid fever; and of this type many of our soldiers in Cuba furnished examples last fall, the infection probably being mixed, a typhoid fever with a complicating malarial. G. The inflammatory fever. H. The bilious remittent fever."

This brings us now to observe the cycle of development in the estivo-autumnal parasite. In its earliest development it is indistinguishable from the quartan and tertian parasites; but as its growth proceeds various differences may be made between it and them. At first we see the small hyaline bodies. These are said to be smaller than those of the other varieties, and more highly refractive. This parasite also assumes the ameba-like form; may be seen to throw out the pseudopodia and arrange itself in different shapes. Soon pigment granules begin to appear. These granules are not as numerous nor as active, nor as coarse as in the other varieties. The granules appear as very minute specks, with little or no motion, and gradually increase a little in size and number, lying, at first, at the periphery of the organism, and later in the center. The organism in this type does not grow to fill the corpuscle, as in the other types, but is much smaller in size. It rarely exceeds one-third the diameter of the blood disc. After the organism has attained a certain growth it segments, just as in the quartan and tertian forms. The segments are quite small, and in number from twelve to twenty. In many instances where the fever continues for a week or more, we find the peculiar bodies known as crescents and ovoids; especially is this the case in countries where this disease is endemic the year round. They become more plentiful the longer the case continues. These crescents are pale half-moon, or sickle-shaped bodies, and have the pigment collected about the center. The horns of the crescent are more or less obtusely rounded, and often a delicate line can be seen joining the two extremities of the horns. Various theories have been advanced to explain the occurrence of these crescents and their functions. Bignami suggested that they were deviate and sterile forms that do not go on to reproduction. The estivo-autumnal parasite occasionally develops the flagellate forms. The cycle of this parasite's growth varies from less than twenty-four hours to more than forty-eight hours.

We thus see that these different parasites develop in different periods of time; that each one of them attains a different size in its development; that the color, amount and arrangement of the pigment is different in each one; that the number and size of spores formed by each one in segmentation differ; that all of them may take on the flagellate form, and trat the crescents and ovoids are peculiar to the estivo-autumnal type.

THE DIFFERENT TYPES OF FEVER.

The different types of fever of which we have spoken are produced by the different lengths of time it takes for the different parasites to develop, and also by the variety of parasites present. The simple quartan gives rise to a paroxysm every third day; that is, it completes a cycle of development in three times twenty-four hours; the simple tertian completes a cycle of development in twice twenty-four hours, and the paroxysms of fever correspond to the breaking down of the parasite into spores. If two generations of the tertian parasite are in the blood, or three generations of the quartan parasite, which in their development are always separated from one another by twenty-four hours, then a regular quotidian fever occurs; if a generation, however, are present either at irregular intervals or in greater number, then the fever will be as irregular in type as are these conditions.

THE MALIGNANT MALARIAL FEVERS.

The most rarely met with of the malarial fevers in this latitude are the ones of the malignant type. It is generally in the tropical or semi-tropical latitudes that these are encountered. Examination of the blood in these malignant fevers always shows the presence of large numbers of malarial parasites, and they are generally in various stages of development; so that the fever is always of a continued character. The toxemia of these fevers is profound, the person often passing into a condition of coma, and death rapidly intervening. "The malignant malarial fevers are classified by most writers according to the culminating symtoms; thus we may have the lethargic, the comatose, with all the intermediate gradations between lethargy and profound coma. Then there may be the delirious, the bulbar, the convulsive, the hemiplegic, the tetanic, etc. Again there are the algid, then the choleric, complicated fevers, the cardialgic, and after these the hemorrhagic, the hemoglobinuric, etc." "It is also a well-known fact that the course of the temperature in the 'complicated' malignant fevers may be very varied, and just as there are cases in which the malignant symptoms continue, and even become aggravated after the fever has ceased, so we also find instances where the fever is entirely wanting (the masked malignant fevers), although the symptoms of infection in general, and the cerebral symptoms in particular, may be most serious."

All of these malignant fevers belong to the summer-autumn group, and are classed as the malignant tertians and the malignant quotidians. The duration of the malignant paroxysm may be short, that is, nearly the same length as the typical tertian or quotidian, or it may be protracted for two or three days with continued fever, with periods of more or less remittency. In these cases after the remission, the malignant paroxysm appears and the fever, with coma, lasts for two or three days. The result of the fever may be favorable, and on the other hand, it is well known that the intermittent malignant fever may be fatal during the first paroxysm. "If the paroxysm of these fevers are so far protracted that they become conjoined, the fever will be continued." "In another case the paroxysms become prolonged and anticipating to such an extent that one begins before the other has finished." "The beginning of each paroxysm is in reality to be discerned by the prevalence in the blood of the mature parasitic fours." As a matter of fact, in many of these malignant malarial fevers, an enormous production of these malarial parasites takes place, so much so in fact that it has been observed that the smaller capillary blood vessels especially in the brain, have oftentimes been seen to be almost engorged with red blood discs, each one carrying malarial parasites, very few parasite-free corpuscles being seen. Thus it will be observed that it is the enormous numbers of these parasites, that by destroying the corpuscles, and at the same time throwing off their toxin, cause the very grave symptoms already alluded to. It must be that the very grave nature of this type of the malarial fevers is due to the great biological activity of the summer-autumn parasite.

A further proof of the great virulency of the summer-autumn parasites is the fact of the malarial hemoglobinuria which is determined, so far as observation has shown, solely by the parasites of this species, and never by the tertian or quotidian parasites.

MIXED TYPES OF INFECTION—DIFFERENTIAL DIAGNOSIS.

Thus it is seen that in these fevers, more than in any other, we may have mixed infection, the course of disease and the attendant phenomena depending entirely on the number and variety of the parasites which may gain entrance to the blood. These mixed types may range all the way from the double tertian, which causes a diurnal paroxysm, to the most virulent type of the mixed infection in the malignant variety, each one of the mixed types depending for its salient symptoms on the strongest toxin producing parasite which may be present and also on the activity of the biological development.

All of these types can only be untangled and separated out by means of very frequent temperature observations and by repeated microscopic examination of the blood. By these means it is possible, and only possible, to differentiate and understand the often seeming inexplainable temperature ranges, and the untoward symptoms which at times manifest themselves.

In the same way it has been possible to arrive at a positive diagnosis, when the subjective and objective symptoms fail to furnish the necessary data to reach a correct conclusion. With all these varied and manifest symptoms, which may accompany these malarial fevers, and with all the sequelæ which often result, we very naturally bring ourselves to inquire as to the ravages and tissue destruction which these parasites cause. When we remember that the natural habitat, in the human body, for these parasites is the red blood corpuscles, and that for their sustenance and growth they appropriate the hemoglobin of these corpuscles, we would naturally expect that the functions of the blood would be greatly crippled. This is, indeed, the fact, for how can it be otherwise? These parasites, by thus destroying the corpuscles, produce anemia with all its train of symptoms. No wonder it is then that in the more severe and malignant of these fevers, we find the person asphyxiated by the want of power of his blood to carry oxygen to his tissues.

Added to this asphyxiating condition we have also to contend with the constantly-being-produced toxin.

We have seen how that in all of these fevers, save few exceptions, the temperature rise is very great, and oftentimes very rapid, but aside from this hyperpyrexia, we have seen that there are some of these fevers which, paradoxical as it may seem, have an apyrexial course, in which the fatal termination is not caused by the excessive body heat, but by the virulence of the toxin overwhelming the vital centers. Thus, then, there are three important conditions to combat, namely: the destruction of the hemoglobin of the blood; the hyperpyrexial state, and the toxemia. All these factors must enter into the successful management of these fevers.

SPONTANEOUS CURES—HOW EFFECTED.

Nature herself aids mostly in this, and thus we are brought to inquire how it is that sometimes spontaneous cures result, and why it is that immunity often ensues.

No doubt we are all more or less familiar with the experiments and observation of Metschnikoff concerning phagocytosis. Just as he observed in the infectious disease so it has been seen in the malarial fevers.

These phagocytes in the blood become very active and aggressive when any foreign substance is introduced. Observation has shown that these blood corpuscles, i. e., the phagocytes, become more active, and relatively more numerous during the commencement of a malarial paroxysm. It has been demonstrated that no true leucocytosis takes place, but only an apparent leucocytosis.

Whenever, in fact, a true increase in the number of leucocytes is seen, then it is certain that some inflammatory action is in progress.

In this phagocytosis of the malarial fevers it has been observed that the phagocytes move about as if in search of some object, and it has even been seen that they attack and develop the malarial parasites.

As we before mentioned, their most active period is at the commencement of a paroxysm. It would seem that this time had been selected because then it is that the malarial organism is at its weakest, because then it is in its youngest or most tender age. But this phagocytic action is not confined exclusively to the beginning of a paroxysm; it goes on almost continuously, but in a lessened activity. These phagocytes have been seen to enclose the stricken red blood corpuscle, which contains a malarial parasite. Beside this parasite-devouring characteristic of the phagocyte, it also lends its aid to the general clearing of the blood of all débris, so that we generally find these bodies containing more or less pigment.

It would seem that after they have performed their function of blood-purifying, then tend to congregate in the spleen, liver, and bone-marrow. This may serve partly to explain why it is that we have enlargement of the spleen as one of the symptoms in this disease; it reaching to the crest of the ilium in some cases. After these phagocytes have thus performed their functions, they seem to disintegrate and die, all passing away, save some of those which have enclosed the so-called degenerated malarial parasites; and it is to these that have been ascribed the cause of the recurrence of attacks of fever afer seeming cures.

It is supposed that the enclosed spores become free and liberated by the disintegration of the phagocyte, and that again they give rise to a fresh crop of parasites, which in turn cause a reappearance of the disease.

The destruction and death of these phagocytes is followed by the birth and multiplication of others to take their places.

There is another way that nature aids the system to rid itself of the malarial parasites and to maintain it free; and that is by the development of an antitoxin. Just as we have the antitoxins formed in the tissues in other diseases, so we undoubtedly have it formed in this disease; and I have no doubt but that in persons who reside permanently in malarial districts, and who have probably had the fever repeatedly,there is developed in their tissues an antitoxin, which for a time, at least, renders the individual immune to future attacks. How this antitoxin is formed is as yet unknown, but it is probable that the stimulating or irritant action of the toxin on the body cells causes or enables them to elaborate this antidotal substance.

CAN MALARIA BE INOCULATED?

It may not be uninteresting to mention that there have been quite a number of experiments performed to prove that a malarial fever can be inoculated from one individual to another by means of the blood. Cases for these experiments were chosen in which the exact type of fever had been confirmed by means of microscopical examinations of the blood. There were nineteen cases inoculated with malarial blood, and in all of these cases the exact condition of the inoculated blood was known. The result of these inoculations was quite satisfactory; each peculiar type of organism producing its own type of fever in over seventy-five percentum of the cases.

In examining the blood it is best to select the time just before the expected attack of chill and fever, for we will then see the parasites in their fullest stage of development, and we will find them in the red blood corpuscles. These appearances have been sufficiently described, so that it will not be necessary to allude to them again.

If the blood is not examined until after the advent of the chill and the commencement of the fever, we will then find that most of the parasites are free in the blood, in the extra globular and small ameboid forms, destitue of pigment, or just commencing to enter the globules, and it will be some time thereafter before the pigment begins to form. In searching for this organism we always look for the small pigment granules, for they are the most easily detected.

Very often we will not be able to find these granules, and in that case, the clear, almost colorless ameba-like body may be seen.

Of course, in the variety which does not develop pigment we will not find it. I refer to the quotidian type which develops rapidly inside of twenty-four hours. The blood of the spleen and of the liver are more likely to contain the organism than that of any other part of the body. It has even been proposed to puncture the spleen for a specimen of blood in any doubtful case. As a matter of routine practice the lobule of the ear is the most convenient and painless part from which to take the blood. It is first cleansed with some alcohol and allowed to dry; then it is punctured with a clean needle, and the first drop or two of the blood allowed to escape; about the third or fourth drop of the blood is then allowed to well up, and the tip of it is touched with a clean cover glass or the blood is quickly spread by means of a piece of clean stiff paper, which is quickly drawn acrosss it, the cover glass is then quickly inverted on the slide and examined in a good light with a 1-12 oil immersion objective. It may be necessary to examine several specimens to obtain a satisfactory result. The examination of the fresh blood specimen is really the only satisfactory and useful clinical means for the detection of the malarial parasites. If we wish to preserve a specimen it is a very simple matter to dry the prepared specimen in a dust-free place, fix it to the cover glass by means of heat or by acetone or alcohol, and then fasten it to the slide by means of paraffin or wax. Indeed, Laveran advises, that these are really the best and only kind of preparations to keep for permanent use. He asserts that the refractive index of some of the mounting media renders the organisms, especially the crescent form, too transparent. When it is desired to stain the dried specimens they are first placed for a short time in an aqueous solution of eosin, washed lightly, then subjected to the action of the methylene blue stain. By this method the malarial organisms and leucocytes are stained blue, while the red blood corpuscles are stained a rose pink. The following is a well-tried and reliable method: Fix in acetone or alcohol, wash lightly, dry, and treat with an alcoholic solution of eosin (½ per cent.) for thirty seconds; decolorize with alternate applications of alcohol and water (3 or 4 times), and treat with a solution of methylene blue for a sufficient time (two minutes to an hour), wash, dry, and mount dry or in balsam.

DIFFICULTIES ENCOUNTERED IN DIAGNOSIS.

In the diagnosis of the malarial parasites one of the first difficulties encountered is the vacuoles of the red corpuscles. These vacuoles are supposed to be caused by the hemoglobin retracting in certain areas and thus producing what seems to be a colorless space; one writer on this subject says: "That it is indeed a contraction of the hemoglobin substance, and in consequence of this a sinking in of the blood corpuscles at the point in question can easily be demonstrated in the method I have frequently before recommended, namely, of examining the object with an open Abbe, and with oblique illumination from a convex mirror; with this illumination, the 'vacuoles' appear as furrows on the smooth upper surface of the blood corpuscle."—Mannaburg. These vacuoles have a sharp cut contour, while the parasites do not, but seem to fade away at their periphery into the corpuscle. Moreover, these vacuoles are devoid of pigment. The malarial parasite can frequently be seen to change its shape, throw out pseudopodia, and to elaborate a pigment.

The free spores are hard to see and differentiate from the blood plates; therefore, it is always best to rely on a stain to bring them out with certainty. If pigment is found free in the plasma, or pigmented leucocytes are found, then it becomes more than probable that the malarial parasite has recently been present in the blood. This pigment does not long remain free in the blood, after a cure, but is generally removed in two or threee days. Suppose that then the malarial parasite has been found in the blood, the question arises: "Can we differentiate one type from another?" Bearing in mind what has already been said concerning the life history of the different parasites, it has been made possible to recognize the organisms belonging to the different types of fever. We have seen that there are five types of malarial fevers, and it is to either of these types, or to a mixed type, that each one of these fevers can be attributed.

To recapitulate: we have, "I. The malarial parasite with spore formation, but without the formation of crescents: and under this head are: A. The tertian parasite; B. The quartan parasite.

"II. The malarial parasite with spore formation, and with the formation of crescents; and under this head are: A. The pigmented quotidian parasite; B. The unpigmented quotidian parasite: C. The malignant tertian parasite."

If the parasite is large, pigmented, intracorpuscular, and nearly filling the blood disc, then it is known that it belongs to the first group; if, on the contrary, it is small, and only slightly pigmented, or not pigmented at all, it is known that it belongs to the second group. Further than this, if crescents are seen, we know it then belongs to the second group. The first group can also be known by the greater activity of the ameboid forms, the greater pigment formation, and the number of spores formed. Whether or not one, or more than one, brood of parasites is present, is sometimes difficult to determine; but attention to the difference in size, and relative amount of pigment in each parasite, will help materially to clear up this point. When we come to decide this point in a mixed infection it becomes yet more difficult, but repeated observation and repeated study of the temperature curves, will do much to ascertain this and help to arrive at a positive conclusion. It must not be forgotten that in the earlier infections the parasite may be missed altogether, but after the disease has become well established and the parasites have become more plentiful, that they are then more readily found. We may have to resort to puncture of the spleen, in obscure cases, in order to obtain the more favorable blood for examination. Thus it will be, that, when in obscure cases of fever, resort is had to blood examinations, our diagnosis will be more accurate, many cases that are now classed as "malaria" will be found to be due to other organisms than the malarial parasite, and the result will be greater safety to the patient, and more accurate results for the physician.

We have not entered into the question of treatment. This is fully discussed in the various systematic text-books, which are accessible to all practitioners. We have rather attempted to assist physicians in their efforts at diagnosis. We trust that we have succeeded.

EXAMINATION OF URINE FOR ALBUMIN AND SUGAR.

By JOHN WINTERS BRANNAN, M.D.,
Medical Director Washington Life Insurance Co., New York.

GENERAL DIRECTIONS.

In selecting a specimen of urine for chemical examination it is best, if possible, to obtain a sample of the urine passed during the day. Urine voided at night or in the morning on rising may be free from abnormal ingredients, while that passed after meals or during the hours of active exercise may contain either albumin or sugar, or both.

Before proceeding to test for the presence of albumin or sugar the total daily quantity of urine should be ascertained, at least approximately. The specific gravity of the urine and its reaction should also be determined.

When the quantity of urine passed in twenty-four hours cannot conveniently be measured, a fairly close estimate can usually be made by careful inquiry as to frequency of micturition and the necessity of rising at night. The quantity secreted in health varies from 1,200 to 1,500 cubic centimeters (40 to 50 fluid ounces), being influenced by the temperature and humidity of the air, the activity of the skin, and the amount of fluids ingested.

The specific gravity of the urine is determined by means of the urinometer. In using the instrument for this purpose care must be taken that it is perfectly clean and that it floats freely in the urine—not adhering to the sides of the cylindrical glass in which the test is made. The specific gravity of normal urine usually ranges from 1015 to 1025, but it may temporarily rise above or fall below these figures, being affected by the same conditions as the quantity of the urine, but in an inverse ratio.

If, however, the specific gravity should remain constantly below 1015 we should suspect the presence of albumin, especially if the quantity of urine is small, whereas a specific gravity above 1025, if it accompany an increase flow of urine, should suggest the presence of sugar. Repeated observations are necessary in such cases in order to determine the cause of the variation from the normal standard.

The reaction of the urine is ascertained by the use of litmus papers. The reaction is usually acid, but may be neutral or alkaline, particularly after meals, without especial pathological significance.

TESTS FOR ALBUMIN.

The simplest and most trustworthy tests for albumin are the nitric acid test and the heat test. These are two separate and independent tests, and should be used in succession in all doubtful cases. For combined delicacy and accuracy they are superior to all the numerous tests which have been recommended of late years. The urine should always be filtered before applying the tests.

THE NITRIC ACID TEST.

The nitric acid test is performed as follows: Fill a conical test-glass
ut two-thirds full of clear urine; then introduce slowly and gradually
bic centimeter of strong nitric acid below the urine by means of
pipette. If albumin is present there appears, at the point of
veen the urine and nitric acid, a sharply defined white zone,
ckness and density, according to the quantity of albumin.
a trace of albumin some ten to twenty minutes may
one becomes visible. In all tests for albumin the
should be held in a strong light against a dark

PRECAUTIONS.

is sometimes formed by the action of
resent in excess in cold urine. This
ontact of the two fluids, and its
ades gradually into the clear
application of a gentle heat,
ed by heat.
f nitrate of urea may
d immediately dis-

in urine, and
surface of the
g nitric acid, but
efore this reaction

occurs not at the line of contact, but high up in the column of urine which contains the acid well diluted.

4. The urine of persons who are taking cubebs and copaiba is usually somewhat opalescent from the presence of resin, and nitric acid, in the cold, sometimes increases the opalescence. A few drops of alcohol will dissolve the resin, but will not affect albumin.

5. In introducing the nitric acid below the urine the point of the pipette should rest on the bottom of the conical test-glass until all the acid has been discharged. The pipette should then be withdrawn with care, so as not to disturb the two fluids at their point of contact.

THE HEAT TEST.

The heat test is made as follows: Add five to ten drops of dilute acetic acid to a convenient quantity of the urine and filter by means of filtering-paper and a funnel. Fill a clean test-tube two-thirds full of the filtered and acidulated urine and boil the upper half of the column of urine in the tube. If albumin is present the upper boiled portion of the urine will show a cloudiness in contrast with the lower half, which remains unchanged.

PRECAUTIONS.

1. Neither too much nor too little acetic acid is to be added, just enough to secure a distinctly acid reaction of the urine.

2. If the urine contains mucus in solution it may be precipitated by the acetic acid. The acid should therefore be added before filtering the urine. This will insure the precipitation and removal of the mucus.

3. Only the upper portion of the urine should be boiled. This is most easily done by holding the test-tube by its lower end, while the upper layer of urine is heated in the flame of a spirit lamp.

If performed with above precautions the heat test may be relied upon absolutely. It is at the same time one of the most delicate tests we have, rendering evident the faintest trace of albumin.

Urine should always be examined when fresh. When, however, it becomes necessary to examine an old or alkaline urine which remains turbid after filtration it should be boiled with a fourth part of its volume of liquor potassæ and again filtered. The filtrate is then usually clear and albumin may be detected by either test.

QUANTITATIVE ESTIMATE OF ALBUMIN.

Both of the above tests may be used for the approximate estimation of the amount of albumin in the urine. If the zone of albumin in the nitric acid test is $\frac{1}{12}$ to $\frac{1}{8}$ inch in depth, is delicate and faintly white in color, and is not granular in appearance, the quantity of albumin is less than half of 1 per cent., usually $\frac{1}{10}$ per cent. If the zone has the depth of from $\frac{1}{6}$ to $\frac{1}{4}$ inch, is granular, white, opaque and perceptible without a dark background, the quantity is considerable, $\frac{1}{4}$ to $\frac{1}{2}$ per cent. If, however, the zone appears granular and flocculent and sinks in more or less lumpy masses to the bottom of the glass, then the quantity is very large, 1 to 2 per cent.

In the heat test the total quantity of urine in the test-tube is boiled after acidulation and set aside for twenty-four hours. The albumin coagulates in flakes and sinks to the bottom. The depth of the deposits of coagulated albumin is then compared with the total depth of the urine. The proportion of bulk occupied—one-fourth, one-eighth, a trace, etc.—is used to indicate the quantity of albumin.

TESTS FOR SUGAR.

Fehling's test for sugar, when properly performed, is one of the most delicate and accurate of all the tests available for clinical purposes. The principle upon which the test is based depends upon the property which grape-sugar possesses of reducing oxide or copper in an alkaline solution to a lower state of oxidation. The test fluid is composed of two solutions, a standard copper solution and an alkaline tartrate solution, both prepared according to the well-known formula of Fehling. The two solutions should be kept in separate rubber-stoppered bottles, and mixed in equal volumes at the moment they are required for use, the mixture then constituting Fehling's fluid. The test is performed as follows:

Mix in a clean test-tube one-half cubic centimeter of the standard copper solution with one-half cubic centimeter of the alkaline tartrate solution and dilute with two cubic centimeters of water, shaking the test-tube sharply two or three times to insure thorough mixture of the different ingredients. Raise the solution gradually to the boiling point and boil for a few seconds, removing the test-tube from the flame from time to time to prevent explosive ebullition of the fluid. If the solution remains clear after this boiling add immediately a drop or two of the urine to be tested. If sugar is present in any quantity, the mixture, after an interval of a few seconds, will turn suddenly to an intense opaque yellow color, and in a short time an abundant yellow or red deposit of sub-oxide of copper falls to the bottom of the tube. If no precipitate occurs more urine may be added drop by drop, reapplying the heat occasionally, until a volume of urine has been added equal to that of the test employed; that is, one cubic centimeter. The mixture is then allowed to cool slowly. If no sub-oxide of copper has been thrown down when the solution has become cold, then the urine may be pronounced free from sugar.

PRECAUTIONS.

1. Albumin, if present in considerable amount, must first be removed by heat and filtration, as it interferes with the reduction of the oxide of copper.

2. The test fluid should always be boiled before adding the urine. Boiling the test fluid is a trial of its purity. Should a precipitate occur on boiling the test fluid alone it shows deterioration from exposure to the air, and a fresh supply must be obtained.

3. The mixed solution does not keep long, therefore only sufficient should be prepared for immediate use. If the two solutions are preserved separately in tightly-stoppered bottles they will remain unchanged for months or even years.

4. In order to prevent contamination of either solution by accidental admixture with the other, the graduated pipette used for transferring the solutions to the test-tube must be thoroughly rinsed with water before it is introduced into either of the bottles containing the solutions.

5. After adding the urine to the hot test fluids the mixture should

not be boiled for more than a few seconds, as a reduction by the natural urinary ingredients, such as uric acid, is sometimes induced by prolonged boiling.

6. A precipitate of phosphates should not be mistaken for the suboxide of copper. The phosphates appear as flocculent masses floating in a clear, translucent, bluish-green fluid.

7. The total quantity of urine taken for the test must not exceed the volume of Fehling's solution employed.

QUANTITATIVE ESTIMATE OF SUGAR.

Fehling's solution is so composed that one cubic centimeter of the mixed test fluid will be completely reduced by exactly five milligrammes of grape-sugar in solution. When all the copper is reduced the fluid loses its blue color. The decolorization of a fixed quantity of Fehling's solution by a known quantity of urine enables us to calculate the amount of sugar in a specimen of urine by the following method: One cubic centimeter of the test fluid is diluted with twice its volume of water and boiled as described above. To the hot solution one-tenth cubic centimeter of the urine is added by a graduated pipette. Heat is then reapplied, the precipitate allowed to subside and the color of the supernatant fluid noted. Then another one-tenth cubic centimeter is added, the heat again reapplied, until it is found, after settling of the precipitate, that all the blue color is removed from the cubic centimeter of Fehling's fluid. From the quantity of urine required to produce this decolorization the percentage of sugar contained in the urine can be readily calculated. For example, if one cubic centimeter of urine has been added, it must have contained five milligrammes of sugar, or just one-half per cent. If two cubic centimeters have been required, the urine will have contained one-quarter per cent. If, on the other hand, only one-half centimeter has been used, it will have contained one per cent., one-quarter cubic centimeter, two per cent., and so on. If the specific gravity or the qualitative test indicates that the quantity of sugar is very large the urine should be diluted with nine parts of water, and the result multiplied by ten.

The following table, condensed from that prepared by Professor Wormley, will aid in the estimation of grape-sugar by this method:

Percentage of Sugar in Urine as Indicated by the quantity of Urine Required to exactly Decolorize 1 Cubic Centimeter of Fehling's Solution.

Urine			
Undiluted		Diluted (1 in 10)	
C. C. Urine.	Grape sugar, per cent.	C. C. Urine	Grape sugar, per cent.
0.1	5.0	0.4	12.5
0.2	2.5	0.5	10.0
0.3	1.66	0.6	8.33
0.4	1.25	0.7	7.14
0.5	1.00	0.8	6.25
0.6	0.83	0.9	5.55
0.7	0.71	1.0	5.0
0.8	0.62	1.4	3.5
0.9	0.55	1.8	2.7
1.0	0.5	2.0	2.5
		2.5	2.0
		3.0	1.6
		4.0	1.25
		5.0	1.0

In order to ascertain the quantity of sugar secreted in twenty-four hours we have simply to multiply the quantity contained in one cubic centimeter of the urine by the number of cubic centimeters passed in the twenty-four hours. If, for instance, the decolorization test has shown the presence of five milligrammes of sugar in one cubic centimeter of the urine, and 1,500 centimeters represent the daily amount of urine, then 7.5 grammes (gr. .005 x 1,500) would represent the total quantity of sugar secreted in twenty-four hours. In order that this calculation may be absolutely correct the specimen of urine tested must be taken from the whole twenty-four hours' urine.

If English terms are preferred, and it be desired to know the quantity of sugar in one ounce of urine, it can be done by converting the metric measures into their English equivalent. If, as in the example above, one cubic centimeter of the urine contains five milligrammes (gr. .005) of sugar, then one ounce, being equal to thirty-two cubic centimeters, will contain 160 milligrammes (gr. 160), or $2\frac{2}{5}$ grains, one gramme being equal to fifteen grains. If the daily amount of urine is forty-eight ounces the daily secretion of sugar will be $115\frac{1}{5}$ grains (48 x $2\frac{2}{5}$).

FERMENTATION TEST.

If the results given by Fehling's tests are not conclusive it is advisable to employ the fermentation test. Yeast causes fermentation in saccharine urine, the sugar being converted into alcohol and carbonic acid gas. The alcohol remains in the urine, but the carbonic acid gas escapes, leaving the urine reduced in specific gravity in proportion to the quantity of sugar present.

The test is most conveniently made as follows: Four ounces of the urine are placed in a six-ounce bottle and a drachm of baker's yeast (or one-quarter of a cake of Fleischman's yeast) is added. The bottle is then closed with a nicked cork to allow the escape of the carbonic acid gas, and set aside in a room at ordinary temperature. If sugar is present alcoholic fermentation soon begins and bubbles of gas will be seen rising to the top of the fluid. As no other constituent of the urine gives a similar reaction with yeast, the occurrence of fermentation with yeast is absolute proof of the presence of sugar. This test is, however, not sufficiently delicate for the discovery of minute quantities of sugar, as urine is capable of absorbing its own bulk of carbonic acid. According to Roberts, urine containing less than 0.5 per cent., or $2\frac{1}{2}$ grains of sugar to the ounce, yields no sign to the fermentation test.

QUANTITATIVE METHOD.

The lowering of the specific gravity, resulting from the fermentation of the urine, enables us, by means of this test, to make a very close estimate of the amount of sugar in the urine. Roberts has determined by experiments that every degree in specific gravity lost in fermentation corresponds to one grain of sugar per fluid ounce. For example, if before fermentation the specific gravity of the urine is 1030 and after fermentation it is 1010, then the urine contains twenty grains of sugar to the ounce. The following method is recommended by Roberts: Four ounces of the saccharine urine are put into a twelve-ounce bottle and a piece of compressed yeast as large as a small walnut is added. The bottle is closed with a nicked cork and placed on a mantel-piece or other warm place. Beside it is put a tightly-corked four-ounce vial filled with the same urine, but without yeast. In eighteen to twenty-four hours the fermentation will be complete. Both urines may then be decanted and the specific gravity of the fermented may be compared with that of the unfermented specimen.

A saccharometer has been designed by Max Einhorn, for the purpose of making a more exact quantitative estimate of sugar by fermentation. This instrument is very ingenious but in my experience it has given less accurate results than the above simple method of Roberts.

A CLINICAL REPORT ON GUDE'S PEPTO-MANGAN.

By SAMUEL WOLFE, A.M., M.D.,
Physician to Philadelphia Hospital, Neurologist to Samaritan Hospital,
Philadelphia, Pa.

There may still be some doubt whether manganese is a normal constant constituent of the human blood or of any of the tissues of the body. It may not have been positively determined whether iron, when given in an inorganic compound or in pure metallic form, is absorbed by the mucous membrane of the stomach or intestinal canal, or whether it accomplishes its curative work by some occult process of stimulation of that membrane, by virtue of which it takes up with greater readiness the nutritive portions of food substances which are presented to it at the same time; or whether it plays a chemical rôle in changing the contents of the alimentary canal, so that what eventually passes into the circulation is more fitted to maintain high standards of nutrition or will prove less deleterious to the processes of life.

Even when we have combinations which, whether obtained synthetically or analytically, resemble the forms in which this metal is found in the blood, our assurance is by no means perfect that they can pass the portals of the circulation, the absorbent organs of the alimentary tract, without great risk of change from their original forms, in their contact with the substances and tissues to which they are exposed.

All these are still questions, on some of which the evidence is sufficiently positive to leave but little doubt, while on others there are so many theories that we are left to choose what may best suit the results of our own observations, if not, indeed, our caprice or fancy.

To the chemist and therapeutist these are certainly interesting and practical questions. Before the physiologist and pathologist still others of equal importance loom up. What are the different steps in the process by which an atom of iron, in either a food or drug, becomes ultimately an ingredient of the hemoglobin of a corpuscle, and what have been the dynamic processes with which it has associated itself up to this point? Again, what is its final destination and disposal? With what materials has it been combined, and what forces has it generated and modified by the time it has finished its course? What accounts for its disappearance under certain abnormal conditions, and why does the train of symptoms which we witness arise under these circumtances?

Again, these are facts, theories, hypotheses and speculations which we are bound to consider, and, in the light of our own reason and judgment, to determine.

But while we are thankful for all the light that can be shed on these problems, and, as members of a cultured profession, are impelled to continue their investigation, yet to the clinician their solution is not essential. Whether this path be flooded with the brightness of midday or shrouded in Egyptian darkness, he must still walk on in it. When, in the records of professional literature or in the acquirements of his own personal experience, certain means have associated themselves with consequent legitimate ends, it is his plain duty to adapt the one to the other. And, again, where the means have been to a degree inadequate, on the introduction of what appeals to his reason as of a higher probable power, he must determine the claim. The clinician must not allow himself to be diverted too far into the by-paths of knowledge, lest he become timorous and undecided. The locomotive engineer, who knows the management of his engine in such a way as to start it, regulate its speed and stop it, so that he will constantly carry his train to its destination on time and without accident, and with the accomplishment of all that is expected of him at the termini and at the way-stations, is but little the better for a complete knowledge of the country through which he travels: of the industries of the towns at which he stops: of the mechanical and physical forces which rule the movements of his engine: or of the mathematical rules which govern the construction of the road.

My observations with Pepto-Mangan, introduced to the profession by Dr. Gude, chemist, of Leipzig, are such as can be easily confirmed by any physician, since they were all made in private practice, and rest on bedside and office notes. I have used the preparation to a considerable extent ever since it was first brought to my notice, which I think was about two years ago. Owing to some specially good results obtained, I was led to the series of recorded observations on which this paper is based. They extend over four months of time, and embrace about fifty cases.

As a rule, I followed the directions issued by the manufacturers in its administration, giving to an adult a tablespoonful dose and to younger subjects a proportionate amount. Milk seemed to be the best vehicle, and immediately before or after meals a convenient time. In its relation to food, however, I do not think we need exercise any special care as to its administration. There were but few cases in which I found any disturbance of the digestive functions by these doses, but in several there was considerable constipation induced, and in one or two some diarrhea, as the apparent result of the drug. While my experiments in this direction have not gone far enough to beget firm convictions, I am of the opinion that in the main equally good results could be achieved by a smaller average dose, and in this way the smaller nnmber of untoward results might probably be still further diminished.

In one series of twenty-three cases the patients were all married women, ranging from the ages of twenty-two to seventy, who were more or less anemic from various causes. In all but five the results were decidedly satisfactory, and of these one failed to report the second time, so that the result is not known. The other four were cases of advanced organic disease, in which no therapeutic procedure could have given decided results. In nine of the twenty-three cases the results might be classed as brilliant. In all of the others I am convinced that no other preparation of iron could have done more. The condensed details of a few illustrative cases from this series follow.

A woman of 65, during several years, had occasionally applied for relief from vertigo, frequent attacks of palpitation and general weakness and nervousness. She also had frequent long-continued attacks of diarrhea and some gouty manifestations in the joints. In November I found her very decidedly prostrated and anemic. She took the Pepto-Mangan in connection with a carefully regulated diet (chiefly albuminous) for six weeks, and gained steadily in strength and weight. At the end of that time her symptoms had disappeared, and she claimed to be in better condition than at any time during the previous two years.

A woman of 25, of highly nervous temperament, cultured and refined, had passed through her first confinement in May, the labor being a very difficult one, and resulting in a still-birth. She grieved very much, and, though fighting bravely against her depression of spirits, by autumn she became very neurasthenic and anemic. She had morbid fears, frequent flushes, and some menorrhagia. She was put to bed and given Pepto-Mangan and strychnia sulphat in gr. 1-30 doses b. i. d., and recovered rapidly. She again became pregnant, and is perfectly well.

A mother of three children, aged 32, the youngest ten years of age, who has during the last year had some three or four attacks of menorrhagia, had gradually reached a quite profound state of anemia in spite of plentiful administration of other forms of iron in the intervals of the menses. She is obstinately persistent in refusing a uterine examination, and was therefore treated symptomatically only. My recent prescription of Pepto-Mangan has rapidly dissipated her pallor and improved her general health.

A primipara, aged 22, was pale during pregnancy, and at the end of her lying-in, though she had not lost blood at all profusely, and claimed to feel well, was very pallid. After using the Pepto-Mangan for two weeks her color had been fully restored.

Two young married women, both of whom had passed through a confinement within a year, were anemic, and frequent sufferers from headaches, and considerably debilitated. They both recovered promptly on the Pepto-Mangan.

Another series of nine cases consists of children from infancy to the age of 12. In all marked results were obtained.

A little girl of 4, for two successive summers had frequent malarial attacks of an irregular character and resulting in anemia and debility. She had been treated with arsenic, quinine, various preparations of iron, and, though responding to the drugs, was still inclined to fall always a ready victim to fresh onsets of the disease. On Pepto-Mangan she made steady and rapid progress toward robust health, and now is a perfect specimen of a vigorous child.

An infant of seven months passed through a siege of infantile remittent with a great deal of bowel disturbance, which yielded to quinine in the course of two weeks. Within a month the same train of symptoms developed, and quinine was again given, and followed by Pepto-Mangan, and since then the child's health has remained good, although several months have elapsed.

A girl of 7, who had for a long time been pale, took diphtheria. After recovery from the disease, the anemia, as might be expected, was still more grave. She was put on Pepto-Mangan and soon became rosy and strong.

Another girl of the same age, also habitually pallid, had wryneck for two weeks, which disappeared under iodide of potassium, but the anemia had increased. Her restoration in color and to robust health was secured by the use of Pepto-Mangan for a month.

A little boy of 4 had measles, from which he made a good recovery. Two months later he was very anemic and listless, with poor appetite and slight feverishness. He at once improved on the Pepto-Mangan, and continued until fully restored.

A baby, six months old, one of a pair of twins, had developed a quite marked degree of hydrocephalus. Large thin blue veins stood in relief all over the scalp. The anemia was very pronounced. She was put on Pepto-Mangan, and her appearance now is much better, with strong indications of the arrest of progress in the disease.

Another series of five cases includes girls approaching, or slightly beyond, puberty, all anemic, and all responding to the use of Pepto-Mangan.

Of this class, a girl of 17, who has always been pale, thin and puny, has only come under treatment within a month. She has never menstruated, and shows but little tendency to don the usual physical habiliments of the maiden. She is under size, but has since her early girlhood always had an aged look. Her appetite is very meager and somewhat capricious. She suffers from pains in the legs, more especially the joints, and has a distinct systolic murmur. Under the Pepto-Mangan she seems disposed to gain in color and appetite, and the pains in the legs have somewhat diminished. I shall watch the outcome of this case with great interest.

In submitting this report, I wish to summarize these conclusions:

That Pepto-Mangan is a highly available preparation of iron, on account of its liquid form, pleasant taste, non-corrosive action on the teeth, and unirritating effect on the digestive organs, admitting thus of easy gradation of dose, easy administration to children and avoidance of unpleasant effects in all classes of patients.

That it is an efficient and rapid restorer of the normal quality and quantity of the blood, in all conditions where the state of the organism admits of this result by the administration of a chalybeate.

GAILLARD'S MEDICAL JOURNAL.

A MONTHLY JOURNAL OF MEDICINE AND SURGERY

Scientia et Veritas Sine Timore.

PUBLISHED BY THE NEW YORK MEDICAL PUBLISHING CO.,
220 Broadway, NEW YORK.

All communications, of either business or editorial character, should be addressed to Gaillard's Medical Journal, 220 Broadway, New York.

Articles for publication will be received with the understanding that they are contributed exclusively to this journal. Reprints will be furnished at actual cost, orders for which should accompany the manuscript. Authors of accepted articles may receive twelve copies of the issue in which they are published. Necessary illustrations will be furnished without expense to authors when suitable drawings or photographs are furnished.

EDITORIAL.

PRESIDENT MCKINLEY'S DEATH.—It is to be deplored that according to the present outlook, the death-wound of President McKinley will probably prove a fertile source of contention among medical writers for some time to come. But, whether or not the original operation was sufficiently thorough; whether or not solid food was introduced into the stomach too soon; whether or not the X-rays should have been employed; whether or not a skilful diagnostician could have made out that other organs besides the stomach had been injured; whether or not a too-favorable prognosis was given, the fact remains that the injury received by the President was beyond the aid of medical and surgical skill and would have proven fatal in any event.

THE HOME TREATMENT OF TUBERCULOSIS.—At the recent meeting of the American Climatological Association, held at Niagara Falls, Dr. Charles L. Minor, of Asheville, N. C., read a paper upon the subject of the hygienic treatment of tuberculosis outside of sanatoriums. He had no wish, he said, to belittle the work that was being done in sanatoriums, but much could also be done at the residences of patients in health resorts like Asheville. Many patients did not care to go to sanatoriums, and in selecting a place to send such patients, the doctor could not be too careful in studying the local conditions and also the circumstances of the patient. Pure air and pleasant, natural surroundings were of the utmost importance, but these would not atone for bad cooking and a cheerless house. The character and habits of the patient should also be studied; likewise his family and business relations, the object being to place him, as far as possible, in a position where he would be free from anxiety and worry.

In discussing the subject, Dr. Arnold C. Klebs, of Chicago, called attention to the fact that first warm temperatures, then cold temperatures, dry climates and ocean voyages—in fact, every variety of atmospheric elements have been recommended for this disease. The conclusion at which he had arrived was that there was no climate, any more than there was any drug, that suited all cases. Among the objections to climatic change were the expense and the worry of it was likely to give a patient if he could not well afford it, homesickness, the fact that the physicians who recommended a change did not know much about the conditions and climates of different places that were supposed to be good for such patients, and above all, the fact that so small a proportion of patients who went to other climates were ever able to return home without having a recurrence of the disease. Condemnation of the climatic treatment might seem radical, but he was looking at the matter from the point of view of the masses, and he did not hesitate to say that what they required was some place not too far from their homes, where they could get fresh air and sunshine, comfort and good food.

In his last sentence, Dr. Klebs has epitomized the all-important factors in the treatment of tuberculosis. "Fresh air and sunshine, comfort and good food" are the essentials of the treatment, and in many instances the patient can better obtain these at home than at a distance. There is no doubt that a reaction has set in in favor of the home-treatment of tuberculosis. The decreasing death rate in the larger cities has gone far to demonstrate the fact that even though it may be impossible to eradicate the comma-bacilli, it is possible, by hygienic living and improved sanitation, to check their inroads and render them innocuous. When the city of Chicago, with its overcrowding, its smoke, dust and high winds, can boast of a death rate of 16.2 per thousand, as it did in 1900, what should we not expect of localities more favored?

Sanatorium treatment is no doubt the ideal treatment of tuberculosis, but only a small fraction of those who are attacked by the disease can avail themselves of it. Let those whose circumstances are such that they must remain at home be impressed with the fact that it is not necessary for them to go to California or Colorado in order to be cured.

Fresh air and sunshine are within the reach of nearly all, and comfort and good food are more apt to be secured at home than among strangers.

To the tuberculous poor—those who must spend their days in the dusty factory or overcrowded workshop, and then go home to sleep in small, ill-ventilated rooms—we can offer little but sympathy. For such unfortunates the State should make some provision, or perhaps one of our many philanthropists will come to their relief.

CHRISTIAN SCIENCE AND THE MORTALITY RATE.—The following paragraph is taken from a letter written by W. D. McCracken, a Christian Science official, to the New York *Insurance Journal*. The writer apparently takes himself seriously:

"It is also significant that during the last ten years, which have seen a phenomenal growth in Christian Science, the death rate in this country has decreased very perceptibly, and at the same time the average age at death has risen very materially. According to the latest figures, just issued by the Census Bureau, the death rate shows a decrease of almost 10 per cent. since the last census, and the average age at death has risen from thirty-one and one-tenth years to thirty-five and two-tenths years. While investigators may ascribe this remarkable improvement to different causes, according to their point of view, these figures prove conclusively and irrefutably that at the same time that Christian Science has been sweeping over the country from end to end, health and longevity have made great conquests over sickness and death."

As a matter of fact, Christian Science, so-called, has had no more influence upon the lowered death rate in this country than the man in the moon has upon the ebbing tide. On the contrary, the teachings of these latter-day faddists are distinctly harmful from a sanitary point of view, and numerous instances have recently been reported where misguided faith in the healing power of Christian Science has probably resulted in loss of life.

THE CIGARETTE HABIT.—The much-abused cigarette has found a champion in Dr. Alexander R. Becker, of Seattle, Wash., who, in a letter to the Philadelphia *Medical Journal*, says:

"It is not strange that many people should suppose that the inhalation of smoke must be irritating to the mucous membrane of the air passages. In fact, it is apt to be so at first, and is persistently so in some people—who should therefore avoid it; but we are emphatically creatures of habit and our mucous membranes are possessed of a very wide adaptability; and the fact that it is not injurious in that way is amply proved by the results—for cigarette smokers are not only not more liable to throat and lung diseases than others, but often find their air passages less sensitive to atmospheric changes than before.

"Conclusions: Tobacco in all forms ought to be absolutely prohibited to boys of less than 18 or 20; (2) Adulterations of tobacco ought to be rigidly ferreted out and punished under laws of Congress; (3) There is a small minority of men to whom tobacco is more or less harmful, and they should refrain from it—but without attempting to stretch or squeeze all the rest of mankind into their Procrustean limit. There are those who have idiosyncrasies—who cannot take opium or quinine or belladonna without harm, in whom shellfish cause urticaria, or a plate of strawberries will produce as sharp an attack of gout as a bottle of Burgundy. But shall any of these small minorities rule the great normal majority? Not in this free country—although it is here, so far more than elsewhere, that they attempt it in so many directions.

"And to those physicians who speak and write unadvisedly I would only say: 'Brethren, study and still study, so that you may teach out of knowledge and not prejudice.'"

A MAUSER cartridge consists of a brass case (containing the explosive and detonator cap), to the anterior end of which is attached a bullet of lead enclosed in a nickel jacket. It has been charged against the Boers that they cover these bullets with verdigris for the purpose of poisoning the English in the South African war. The *Lancet* has been investigating the matter and absolves them from any evil intention or practices. The green coating on these bullets, upon analysis, proved to be a mixture of paraffin wax and carbonate of copper, which appears to have been used for the double purpose of preventing the cartridge from suffering from damp, and of supplying a hermetical closing between the brass capsule and the bullet, and thus preventing rust of the barrel. The English chemists have made this statement on the principle of fair dealing.

Speaking of bullet wounds, Dr. Dent, in the *British Medical Journal*, says Mauser bullets commonly make a clean hole and practically lets in no air. The bullet itself is sterile, but shreds of clothing are likely to be highly septic. In some cases the apertures of entrance and exit are indistinguishable. It may be anticipated that the mortality of injuries following injuries of long bones in the present campaign will be at least twice as low as in the American civil war, when it was sixty-four per cent.

Book Reviews.

OBSTETRIC CLINIC. By Denslow Lewis, Ph.C., M.D., Professor of Gynecology in the Chicago Policlinic; President of the Attending Staff of Cook County Hospital, Chicago; President of the Chicago Medical Examiners' Association; Vice-President of the Illinois State Medical Society; Ex-President of the Physicians' Club of Chicago; Consulting Obstetrician to the Florence Nightingale Home; Senior Gynecologist and Obstetrician to the Lakeside Hospital, Chicago; Late Special Commissioner from the Illinois State Board of Health and the Health Department of Chicago for the Investigation of Municipal Sanitation in European Cities. A series of thirty-nine clinical lectures on practical obstetrics delivered to students and practitioners in Cook County Hospital, Chicago. Together with remarks on criminal abortion, infanticide, illegitimacy, the restriction of venereal diseases, the regulation of prostitution and other medicosociologic topics. Octavo, 640 pages. Price, $3.00. E. H. Colegrove, 65 Randolph street, Chicago.

We have read over carefully nearly the whole of this work, and can truthfully say that it has been a long time since we have had the pleasure of perusing a more interesting and instructive work. The book is replete with information and the author has carefully selected his subjects and the illustrating material. The lectures are excellent, and, taken as a whole, include nearly all the different phases of obstetrical practice. Especially are they instructive, embodying as they do many experiences of the author, and supplemented by his extensive reading and good sense judgment. The lectures on the relationship of syphilis to society, the prophylaxis of venereal diseases, and the restriction and regulation of prostitution are particularly good; and we are glad to see this author taking a decided stand in regard to how these things should be dealt with.

This excellent work consists of a series of thirty-nine clinical lectures, each lecture in itself being a complete review of the clinical side of the case. No practitioner can read this work without gaining a vast amount of knowledge, and further, we know of no similar work better adopted to the needs of the practitioner who in his daily work is brought into contact with the puerperal patient.

We congratulate Dr. Lewis on the completeness of his work and predict a wide sale of these lectures.

OBSTETRIC AND GYNECOLOGIC NURSING. By E. P. Davis, A.M., M.D., Professor of Obstetrics in Jefferson Medical College and Philadelphia Polyclinic. 12mo volume of 402 pages, fully illustrated. Philadelphia and London: W. B. Saunders & Co., 1901. Price, $1.75 net.

It has not been many years since it was the popular belief that any old woman or "old aunty" could nurse an obstetric case, but this has all been changed during recent years. For any one to read Dr. Davis' book on nursing and then be ignorant of all the requirements of a good nurse is more than we can believe. The book is well written, the contents conveniently arranged, and the subject matter well explained, so that it becomes valuable to the physician as well as the nurse.

It is the best work on obstetric nursing we have ever seen. Any physician will profit by reading it.

RAYMOND'S HUMAN PHYSIOLOGY: HUMAN PHYSIOLOGY.—Prepared with special reference to Students of Medicine. By Joseph Howard Raymond, A.M., M.D., Professor of Physiology and Hygiene in the Long Island College Hospital, and Director of Physiology in Hoagland Laboratory, New York City. Second edition, entirely rewritten and greatly enlarged. Handsome octavo volume of 668 pages, 443 illustrations, 12 of them in colors, and 4 full-page lithographic plates. Philadelphia and London: W. B. Saunders & Company, 1901. Cloth, $3.50 net.

Since the first edition of this work scientific research has made such rapid progress in the study of human physiology that the author deemed it imperative entirely to rewrite the work. In the extensive division the same general subdivision of the subject has been retained, adding, however, a section on Histology, which will be found fully adequate for a thorough understanding of the physiologic anatomy of the organs whose functions are under discussion. Special attention has been given to the influence of alcohol upon mouth and gastric digestion, to the subject of deglutition and the gastric movements as observed by use of the Roentgen rays, and to the physiologic significance of gastrectomy.

Internal secretion, thyroid treatment, blood coagulation, fat absorption, and the most recent contributions on the genesis of uric acid has been concisely, though thoroughly, considered.

Laryngeal photography, by Professor French, and the subject of voice-production has been extensively discussed, elucidating the text by numerous well-selectetd illustrations.

In the portion of the volume devoted to the Nervous Functions, many changes have been introduced, necessitated by the general acceptance of the "neurone theory;" and the sections treating of the senses of sight and hearing have also been greatly elaborated.

In the discussion of the Reproductive Functions stress has been especially laid upon the divergent views regarding the relation of menstruation to ovulation.

In every way the new edition of this most valuable work is highly commendable. It will be found useful and practical, not only to the student, but also to the practitioner, as an up-to-date book of clear, concise, accurate information.

GAILLARD'S MEDICAL JOURNAL.

VOL. LXXV. NEW YORK, NOVEMBER, 1901. No. 5.

PAST, PRESENT AND FUTURE OF CANCER.

By STUART McGUIRE, M.D., Richmond, Va.

Cancer has been a constant subject of study in all ages and in all nations, but the mystery of its origin has yet been unsolved, resistance to its progress has yet proved unsuccessful, and the symbolic crab continues to sink its claws slowly but relentlessly into the flesh of its victim. The disease, at first local, becomes regional and constitutional; recurring when removed, disseminating when left; undergoing degeneration, intractable ulceration, deep spreading excavation, and is usually followed by cachexia and death.

It is the object of this paper to review the history of cancer, to call attention to the recent views of the etiology of the disease, to state the present accepted principles of its treatment, and to suggest the possible developments of the future, a scope admittedly too broad to be properly covered in the time at the writer's disposal for preparation, or of the society's program for reading.

The earliest medical writings contained descriptions of tumors, and their origin was attributed to the influence of malign or evil spirits. Hippocrates taught that the body was composed of four humors; blood, phlegm, black bile and yellow bile, and Galen believed that tumors resulted from the accumulation of one of these humors. Harvey, by the discovery of the circulation of the blood, overturned preconceived views of pathology and the blood was next regarded as the source of disease, and its organization the origin of tumor formation. Boerhaave, some years later, ascribed tumors to the newly discovered lymph, the vitiated or degenerated variety being supposed to produce cancer. Hunter was the first to recognize the similarity in structure between tumors and normal tissues and to maintain that they originated by a modification of formative processes. Broussais, early in the Nineteenth Century, claimed that all tumors, including cancer, were forms of chronic inflammation consequent on organic irritation. This view, owing to its simplicity and comprehensiveness, at once became accepted, but its supremacy was shortlived. Schleiden, with the aid of the then recently perfected microscope, discovered the cellular structure of plants. Schwann demonstrated the analogy in animals; Muller established the

---

Paper read before the Medical Society of Virginia, at meeting held in Lynchburg, November 5, 6, 7, 1901.

fact that tumors were formed of cells, but believed the cells were derived from the blood. Virchow accepted the cellular structure of tumors, but denied the blastemal origin of the cells. He proved that cells could not develop *de novo*, but followed biological laws and were always the result of the division of pre-existing cells. He believed in metaplasia and taught that a given cell under some conditions might become an epithelial cell and under other conditions a connective tissue cell. Cohnheim controverted the existence of metaplasia and established the law of the legitimate succession of cells. He classified tumors by referring each to the embryonic layer from which its cells had origin, and advanced a novel and ingenious theory to explain their development. He claimed that during the progress of cell differentiation in the empryo more cells were produced at a certain point than were necessary for the formation of that particular region. He believed that these left-over cells, not utilized by the growth of the organism, were arrested in their further development and remained in a dormant condition. He claimed that if the energy of these detached and slumbering islets of embryonal cells were reawakened later by internal or external stimulation, they would undergo rapid proliferation and for a tumor, whose histologic type and clinical behavior would depend on the epiblastic mesoblastic or hypoblastic source of the parent cells. The physiologic analogue of this hypothetic pathologic process is seen in the changes which occur in the human body at the age of puberty, when cells that have slept for years with latent energy are reawakened, and multiplying rapidly, produce the development of the sexual organs and the other changes characteristic of that period.

Based on Cohnheim's theory, which is almost universally accepted, the term tumor is now used in a much more restricted sense than formerly. At one time the word was employed to designate all kinds of swellings; now a sharp line of separation is drawn between tumors supposed to be the result of the proliferation of embryonal cells occurring independently of microbic cause, and inflammatory swellings demonstrated to be the result of the proliferation of mature cells produced by the action of pathogenic organisms.

Bacteriologists have accepted this division, but have patiently and persistently endeavored to prove that many of the growths supposed to be tumors or neoplasms, due to the proliferation of embryonal cells, were really inflammatory swellings, due to the action of hitherto unknown but recently discovered micro-organisms. In the past few years lupus, syphilis, leprosy, tuberculosis, actinomycosis and other diseases have been proved, either by direct demonstration or by argument from analogy, to be due to a germ, and one by one have been transferred from the slowly diminishing list of tumors to the gradually increasing list of effective granulomata. At this time a vigorous and well directed effort is being made to prove that cancer is due to a parasite, but the claim is resisted by the adherents of the cellular theory of the origin of the growth. Two papers read a few months ago at the same meeting of the American Medical Association, one by Dr. Nicholas Senn, of Chicago, and the other by Dr. Roswell Park, of Buffalo, ably and forcibly present the two sides of the question.

Senn, perhaps, the greatest surgical philosopher of the day, presents his views with citations of authorities so voluminous that while the article will remain as a permanent encyclopedia of reference to the literature of the subject, it is almost impossible to make an abstract of it that does justice to the author. Senn adheres to the cellular theory of the origin of cancer and claims that from an etiologic standpoint very little has been added to our knowledge of the disease since the epoch-making labors of Virchow, Cohnheim and Waldeyer. He says that after the demonstration of the fact that all inflammatory processes were caused by micro-organisms it was natural that by reasoning from analogy the conclusion was reached that cancer was also a parasitic disease. Earnest workers in all parts of the civilized world have investigated the subject, various methods of tissue staining, cultivation and inoculation have been utilized; numerous intra-cellular and extra-cellular bodies have been discovered and described, but the numerous claims of having isolated the essential cause of cancer have never yet been substantiated. Searching criticisms from different reliable sources have shown almost conclusively that these bodies are not living organisms but the products of degeneration of the cell protoplasm of a non-parasitic nature.

Senn claims that the histology and histogenesis of cancer speaks against a parasitic origin of the disease because of the difference in the histologic structure of the cells which constitute the mass in carcinoma and in inflammatory products. Carcinoma differs morphologically according to the structures in which it originates, while inflammatory products present the same structure independent of their anatomic location or character of the tissue involved. In other words, carcinoma of the breast when transported by metastasis to the liver produces typical breast cancer in the liver, while inflammation of the breast transported to the liver produces ordinary hepatitis.

Senn states that the results of implantation and inoculation experiments have so far failed in establishing the parasitic theory of carcinoma. The two objections to the validity of the claim are, first, the variety of microbes and bodies which have been found in carcinoma tissue by different experimenters, and for all of which—at different times and by different authors—the same specific pathogenic qualities have been claimed. Second, the histologic structure of the products of implantation of carcinoma tissue—or inoculation with the supposed cancer germs—does not correspond with the structure of a true carcinoma. Senn states that no well authenticated case of inoculation carcinoma has occurred among surgeons who have frequently injured their fingers and hands during operations for carcinoma, while inoculation tuberculosis from the same cause has been frequently observed. The same can be said of persons who take care of carcinoma patients, or who live in the same room with them. In the case of an inoperable carcinoma of the leg Senn implanted subcutaneously fragments of aseptic carcinoma tissue at two points on the affected limb. During the first two weeks little nodules formed at the point of inoculation but then gradually disappeared.

On May 4, 1901, Senn inoculated himself with carcinoma tissue immediately after he had completed a radical operation for advanced carcinoma of the lower lip. The patient from whom the malignant graft was obtained was an Irishman sixty years of age. The submental and submaxillary lymphatic glands were involved. The glands were immersed in warm saline solutions and from one of them a fragment the size of a spilt pea was used for implantation. A small incision was made about the middle of the forearm under strict aseptic precautions. One of the margins of the wound was undermined sufficiently to make a pocket large enough to receive the graft. After implantation the wound was closed with a horse hair suture and iodoform collodium. The carcinomatous nature of the glandular affection was proven by microscopic examination of the gland from which the graft was taken. In the course of a week a nodule the size of a pea made its appearance, which remained stationary for two weeks and then gradually disappeared.

Dr. Rosewell Park, to whose enthusiasm and indefatigable industry was due the establishment of the New York State Pathological Laboratory for the study of cancer, takes the opposite view. He claims that the infectiousness of cancer has been proved, but admits that the exact nature of the organism has not been demonstrated. He says that it is not now believed that cancer is due to a bacterium but to a parasite, perhaps similar to the plasmodium of malaria. Little is known of these lowly forms of animal life and it has not yet been determined whether Koch's laws for the determination of the infectious nature of a given disease are valid when applied to them. In the Buffalo laboratory these organisms have been found whenever conditions were favorable, and the introduction of cultures made from them has produced fatal results in animals, although the inoculations have not invariably produced distinct carcinomata. Park states that Cohnheim's theory explains the presence of certain cells in unusual localities but offers nothing to explain the peculiar behavior of these cells, which constitute the essential feature of malignant growth. He claims that the parasitic theory is much more satisfactory than the cellular theory, and substantiates his views with arguments by analogy, by comparative pathology, by microscopic findings and by clinical observations. He states that the study of tumor formations in the vegetable kingdom shows a striking analogy between the proposed parasitic theory of the origin of cancer in animals and the known relation of insect infection in plants. Botanists have shown that tumors occur in trees. They vary in size from a trifling gall to a large woody mass and are frequently spoken of as "tree cancers." The infectious agent or parasite is a minute insect which disturbs cell growth and produces cell proliferation. Usually there is a traumatism of the bark with infection of the growing wood beneath. A combination of etiologic factors is necessary, the infection atrium and the infectious agent. Without the atrium the insect could not enter, without the agent the breach would be healed without pathologic change.

Park states that the comparative pathology of tumor formations in the lower animals furnishes an equally strong argument in favor of the parasitic theory of cancer in the human race. Various tumors occurring in insects and invertebrates have been demonstrated to be due to protozoa. The higher we go in the animal scale the more closely do these tumors resemble those in the human being, until the histologic characteristics are almost exactly similar. One cannot avoid the conclusion that tumors in animals and man are due to the same general cause. If then their existence in animals can be proved to be of parasitic origin it strengthens the conclusion in favor of a similar origin for such lesions in man.

Park states that metastasis is regarded as the principal evidence of infectiousness in all infective diseases, from the most acute of the septic and pyemic type to the slower manifestations of tuberculosis. The similar manifestations in cancer is a like evidence of its infectiousness; if it means anything in the one case it has exactly the same meaning in the other. As the surgeon watches a case of melanotic sarcoma of the leg and sees the gradual transmission of the disease up the limb, and becomes still later aware of the involvement of the liver, then of the lungs, and then of the various other parts of the body, how can he help but say that this is a disease which travels along the same paths and after the same fashion as does tuberculosis; or, when he sees cancer *en cuirasse* following an operation for cancer of the breast, how can he avoid the conviction that he has here to deal with a slowly creeping infection which is gradually extending and traveling as only an infection can?

On the microscopic appearance of cancer Park says that it is a well-known fact that in and between cells of cancer growth are seen peculiar forms or particles which have been regarded by some as parasites, by others as a product of cell degeneration. No such appearances are noted in healthy tissue, or in the infectious granulomata, or in the truly benign tumors. They must be either cell degenerations or parasites. Exactly similar appearances have been produced in large numbers after inoculation with cancer material but no one has been able to produce such degenerations under other circumstances.

Under clinical observations confirmatory to the parasitic theory of the cause of cancer Park reports the case of a woman with epithelioma of the chest wall following a burn. As a result of the cicatrix her arm was bound down to her side and a cancerous ulcer appeared on its under surface. He states that numerous instances in which cancerous infection has followed the track of instruments, such as the trocar, afford other evidence whose value is undeniable. In regard to the objection raised to the infectiousness of cancer based on the fact of the almost constant failure of investigators to reproduce the disease by inoculation or implantation, he says that the failures were due to ignorance in regard to the conditions which favor the life of minute organisms. By observing certain conditions at the Buffalo laboratory carcinoma has absolutely been produced in a number of animals by inoculation, and one positive demonstration of the infectiousness of the disease is worth more than one hundred negative experiments.

Leaving the discussion of the essential cause of cancer, and withholding judgment as to the merits of the rival claims of the intrinsic cell and the extrinsic parasite, the writer wishes briefly to discuss some of the exciting factors which clinical experience clearly prove to bear an important relation to the actual development of the disease.

Heredity. The mysterious influence of heredity, a force transmitted by a single cell to the entire organism, by which physical attributes, intellectual powers, moral qualities and pathologic tendencies are perpetuated from parents to offspring, markedly influence the occurrence of cancer. Twist the facts as you please the inevitable conclusion cannot be avoided that cancer runs in families. Here, as in the following sections, the explanation may be made compatible with either of the two theories of the essential cause of the disease. If the cellular theory be correct then there is diminished physiologic rsistance to the growth of the matrix of embryonal cells and they assume active tissue proliferation. If, on the contrary, the parasitic theory be true, then it is an increased susceptibility of tissue from diminished physiologic resistance to action of the micro-organism and they effect localization and produce their characteristic results.

Age.—So constant a factor is age in the development of cancer that it is used as a practical diagnostic fact in doubtful cases. Cancer is a disease of middle and advanced life. While the forces of growth and reprouctive activity are greatest the tendency to cancer is least. When cancer develops in opposition to these forces the prognosis is gravest. A well-known surgeon once said with reference to the relation of age to the probability of cure, "the older the better."

Sex.—The influence of sex on the occurrence of cancer is demonstrated by the fact that the disease occurs nearly twice as often in women as in men. This is probably due to the functional activity of the breast and uterus in the one sex and the functional inactivity of the analogous organs in the other.

Race.—The bearing of race on cancer is evident, as it is stated that in the United States cancer rarely affects the Indian, and the negro is attacked less frequently than are the whites. As a rule, the higher the civilization the more prevalent the disease.

Diet.—It is supposed by some authorities that diet plays an important rôle in the devlopment of cancer, but its influence is denied by others. It is claimed that the disease is less frequent in the vegetarian than in the flesh-eating, the statement being supported by statistics apparently proving that nations living on rice are less susceptible than those living on animal food, and that in any country the portion of the population which, either through taste or necessity, lives on vegetables, is more immune than their fellows whose diet contains a large proportion of meat.

General health.—The constitutional condition has an uncertain influence on the development of cancer, but it is stated that cancer is a disease of persons whose previous life has been healthy and whose nutritive vigor gives them otherwise a prospect of long life.

Traumatism.—Traumatism is an important factor in cancer, for in at least 20 per cent. of all cases of the disease the patient will give a history of local injury to the part affected. The injuries are usually of trivial nature, and the explanation offered is that serious injuries cause vigorous reaction with complete restoration of the part, while minor injuries are often followed by incomplete reaction and the tissues are left with diminished physiologic resistance.

Local irritation.—It is a well accepted fact that local irritation acts as an exciting cause of cancer, as manifested by the frequency with which the disease attacks parts and organs most often the seat of repeated and prolonged irritation. As examples may be cited the lip cancer of smokers, the scrotal cancer of chimney sweep and the close association between gall-stones and cancer of the liver.

Geographical.—The habitat of the individual increases or diminishes the probability of cancer. The disease is rare in the arctic and tropical regions and frequent in the temperate zone. It is almost unknown in Iceland, Greenland and Africa, and common in America, Europe, Asia and Australia.

Topographical.—The influence of topographic location is demonstrated by the difference in mortality records in rural communities and in manufacturing centers. As a general proposition it may be stated that the rate of cancer is highest where the struggle for existence is hardest and the density of population greatest.

Dismissing the subject of the etiology of cancer and omitting for lack of space all reference to the histology, symptomatology and diagnosis of the disease, the question of its treatment will next be considered.

The great and vital importance of the proper management of carcinoma can only properly be appreciated after a recognition, first of the frequency of the disease, second, the apparent rapid increase of the disease, and third, the improvement in results that has followed the modern methods of radical surgical extirpation of the disease.

The following figures are gathered from a recent article of Dr. Frederick S. Dennis, of New York: In 1890 the death rate from cancer for the United States was 53 per 100,000 population; for England, 67; for Scotland, 60; for Austria, 52; for Ireland, 45; for Prussia, 43; for Italy, 42. In England there are 7,000 deaths annually from cancer and 30,000 patients suffer at all times from the disease. In the United States, by the census, there were 18,000 deaths from cancer in 1890, and conservative estimates now place the death rate at over 25,000 per annum. Based on the proportion of deaths to cases, as calculated for England, there are to-day over 100,000 cases of cancer in the United States. Statistics also show an apparent alarming and rapid increase in the number of cases of cancer. It has been calculated that in recent years cancer of the breast alone has increased 12 per cent in Connecticut, 50 per cent. in the District of Columbia, 115 per cent. in Rhode Island, and 179 per cent. in Philadelphia. Rosewell Park makes the startling statement that if cancer continues to increase during the next ten years as it has done in the past ten, at the end of a decade more people will die in the State of New York from cancer than will die from smallpox, typhoid fever and tuberculosis combined.

It is but fair to state that Senn and others claim that this increase is more apparent than real, and is due to more accurate diagnosis, more frequent postmortems, more general resort to operative intervention, and to increased longevity.

Statistics in regard to the improvement in the permanent results of operation for cancer are prolific but not easily concentrated to comparative figures. Dennis reports eighty-seven cases of malignant growths operated upon and cured; the nature of the disease in each instance being demonstrated by microscopic examination, and the permanency of the result tested by careful subsequent observations for a period, in no instance less than three and in some of over twenty years.

While Dennis' results are no better than those attained by many other surgeons, yet he deserves the thanks of the profession for the arduous labor he has performed in tracing his cases and proving the fallacy of the views of many of the laity that cancer is incurable.

In actual practice almost every conceivable treatment has been applied to cancer, and while the dearly earned experience has united the profession in the conclusion that at the present time there is but one possibility of cure, namely early and radical surgical intervention, it will be well to review other methods which have been tried and failed.

Electricity.—Electricity, which has promised so much in so many different fields of medicine and which has practically yielded so little of positive therapeutic value, has been long, faithfully and variously employed in the treatment of cancer. Constant and interrupted currents have been applied, electrylosis and cataphoresis used, and lastly the influence of the X-Ray tested, all with practically negative results.

Drugs.—The local application of methylen blue formaldehyde and similar antiseptics has resulted in no good except to diminish the offensiveness of discharge in ulcerative cases. The parenchymatous injection of alcohol, acetic acid and other sclerotics has accomplished nothing save in a few cases where they have temporarily arrested local extension by impairing the blood supply through cicatrization of adjacent tissue. The internal administration of iodide of potassium, arsenic, cundurango, turpentine, cinnamon, clover tea and a host of others has served no purpose unless it has been to keep alive the flickering hope of poor unfortunates painfully conscious of their doom.

Toxins and Serums.—The injection of the combined toxins of the streptococcus erysipelatis and of the bacillus prodigiosus which for a time excited so much attention, has ceased to be seriously considered. Even its originator, Coley, states that it has only an inhibitory influence on carcinoma, and is but rarely curative. Cancroin, a toxic product derived from cancerous tissue by Adamkiewicz, has been extensively tried, but has proved to be without specific virtue. Blood serum, obtained from horses, goats and sheep injected with cancer juice or the toxins of the supposed cancer protozoon, have likewise failed. Despite these facts the serum therapy of cancer offers a promising and fascinating field for investigation. If cancer be due to a parasite; if it can be isolated and cultivated; if its peculiarities can be studied and its idiosyncrasies noted, in the words of Dr. Park "It is not too much to hope that some agent, be it either vegetable or mineral drug, or animal antitoxin, may yet be discovered by which the ravages of the disease may be checked or prevented."

Caustics.—Chemical escharotics were once largely used by the profession in the treatment of superficial forms of cancer, but they have now been practically abandoned and are only of interest owing to their frequent revival by quacks and charlatans, who re-introduce them as new discoveries, cloaked in mystery and invested with marvelous properties.

A caustic causes coagulation of the protoplasm of the cells with which it comes in contact. It acts chemically, has no selectivity, and destroys healthy and diseased tissue alike. It produces the formation of a sphacelus, which separates from adjacent structures by ulceration. Its action is slow and the pan produced prolonged and extreme. Its destruction of tissue is uncertain in extent, and the carcinoma is frequently not removed and sometimes healthy tissue is unnecessarily sacrificed. It leaves an open, suppurating wound, which entails a long period of convalescence, and exposes the patient to the dangers of secondary hemorrhage and pyemic infection.

When it is remembered that the only object in the use of a caustic is to remove the diseased tissue, and when it is known that this can be done so much more speedily, accurately and painlessly by the knife, with shorter period of convalescence, less resulting deformity and diminished risk to life, it is at first a matter of surprise that cancer quacks prosper. Competition with them, however, will soon supply the explanation. Competition, not in a pecuniary sense, for they have consistency in their effrontery and their charges are in proportion to their promises; but competition in a higher sense; contention for a case, not a fee; effort to save a patient from what is believed to be a sacrifice of the one and only chance of recovery, namely radical surgical removal before regional and general infection make the case inoperable. For quacks have apparently no professional restrictions, no moral obligations, and no legal responsibilities. Free from the provisions of the Code of Ethics of the regular profession, they advertise extensively in all the popular publications of the day, offering hope and promising cure to despairing individuals ready to grasp at straws. Communication once established the victim is bombarded with reprints of histories of cases successfully treated, copies of eulogistic editorials from venial religious papers, and sweeping letters of indorsation from ignorant and credulous ministers of the gospel. The patient secured, the lotion or paste is applied. If the disease be a warty excrescence, or a benign tumor, or a syphilitic sore, the case is cured and the result recorded. If it be cancer, the case dies and the profit is pocketed. Yet, the public, which has organized a Society for the Prevention of Cruelty to Animals, and the legislature, which has passed laws to prevent money being obtained under false pretences, stand idly by, and the medical profession, when it attempts to expose the outrages being committed, is charged with being actuated by unworthy motives.

Operative Treatment.—The early and radical use of the knife offers the only possible cure for cancer. The theory that cancer is a local manifestation of a constitutional dyscrasia has been abandoned. The fact that cancer is at first a strictly local disease and becomes regional and general later by extension and metastasis has been accepted. If the diagnosis of cancer can be made early while the disease is yet local, and if its anatomical position is such as to permit of its complete removal, the prognosis is good. If the diagnosis of cancer is delayed until the disease has become regional by extension through the lymphatics, the prognosis is bad. If the diagnosis of cancer is postponed until the disease has become general by dissemination through the veins, the prognosis is hopeless. It will thus be seen that the cases early diagnosticated are the ones that give the cures, and the cases only recognized late in their pathologic life give the failures. Authorities state that after the disease has been in existence for more than six months removal, no matter how complete, is almost certain to be followed by recurrence.

Second only in importance to early diagnosis is the completeness of the operation for the removal of the infected tissue. Heidenheim, by exhaustive research, has shown the direction of the regional extension of cancer, and taught the surgeon the necessity of not only removing the organ in which the disease originated, but the adjacent lymphatics as well. In cancer of the breast not only should the mammary gland be amputated, but the axillary and possibly the supra-clavicular space opened and explored. In cancer of the cervix not only should the uterus be removed, but the retro-peritoneal glands of the pelvis examined. In cancer of the penis not only should the organ be sacrificed, but the inguinal glands exposed and if necessary enucleated. As operations for cancer have become more radical the ultimate results have become more favorable.

Did time permit the writer could report from his personal operative experience cases of cancer of the skin, of the lip, of the tongue, of the stomach, of the bowel, of the rectum, of the breast, of the uterus, of the penis, and of various other organs and structures, which would illustrate the method of clinical diagnosis and the technique of surgical intervention. But as such is not the case, he will reserve them for a future and more practical paper.

THE ORDINARY CLINICAL EXAMINATION OF THE URINE.

By THOS. C. CRAIG, M.D.,
Surgeon, U. S. Navy. (Retired) Brooklyn, N. Y.

To the clinician it often becomes necessary to make a chemical and microscopical examination of the urine in order to determine the condition of the kidneys and their accessories in order to ascertain their condition, and to determine whether the ultimate metabolism of digestion is physiologically carried on. This is often regarded as quite a difficult task, or the doctor is so much engaged that he cannot find time to carry out the necessary technique, or he is called on so seldom to do these things that he fails to keep in touch with the systematic processes of the examination. Every examiner and physician should be sufficiently conversant with the action of reagents and with the use of the microscope to be able to make these tests. It has often occurred to me that for all clinical purposes there are only a few things concerning the urine really necessary to know. We are all aware that normal urine contains certain substances, and that in health these bear a certain relation to each other, with a varying per centum according to diet, exercise and environment. For all practical and medical purposes it does not matter much whether this relative percentage varies slightly temporarily or not. The important point is that this disturbed equilibrium shall not be permanent, because it is then that these excrementitious substances being retained in the tissue or circulating in the blood or in their passage out by the kidneys, do harm. It is far more important for the clinician to know the abnormal things that are occasionally in the urine, and to be able to deduce the pathological condition present from his knowledge of the physiological action of the different organs.

It matters very little whether the chlorides are slightly in excess or are deficient, or whether the earthy phosphates are deficient while the alkaline phosphates are increased. Medication is not yet able to correct these derangements. The most important things to know are these: Does the urine contain albumin, sugar, casts, blood, pus, oxalate of calcium, bile, spermatozoids; or is the uric acid in abnormal amount? If so what is their approximate quantity: are they constantly present or intermittently absent; what is their source; and what causes them? In regard to albumen, much has recently been written in regard to its presence in the urine. We are told that intermittent albuminuria is almost physiological, or nearly harmless. It is impossible to accept this view. No normal kidney epithelium will allow the albumen to escape. If it does so, the fact shows a weakened kidney cell structure, and sooner or later, if the process does not cease, a degeneration of the kidney will ensue.

It is believed by certain investigators that this so-called intermittent albuminuria is caused by the excretion of a poison formed when an over-necessary amount of albuminous food is ingested. Be this true or be it not true, the fact remains that albumen in the urine is abnormal.

Almost the identical remarks concerning intermittent albuminuria will also apply to the disease sometimes called functional glycosuria. The presence of either one of these substances indicates a weakened neuro-epithelial control; and hence we are always justified in searching for a cause for these things. Tube casts in the urine undoubtedly indicate some congestive disturbance of the kidneys. It was not very long ago that any tube cast was looked upon with grave suspicion; but we now consider the kind and number of casts in forming our opinions. We very often find the small, clear, hyaline casts in the urine of persons over forty-five years of age, and yet they give no evidence of impaired health; and observation has shown these persons to have as great a longevity as persons who do not have any casts in their urine. On the other hand, some writers still contend that the presence of even the innocent looking hyaline cast is the precursor of organic kidney trouble. Certainly a hyaline cast which has kidney epithelium adhering to it, is much more grave and serious than one without. So then our judgment must be formed by the number and kind of tube casts present.

If blood or pus is present we must try to determine their source, and the cause of their presence, and deduce from this knowledge our conclusions whether or not they are the forerunners of serious trouble. So, then, the only really necessary things to look for in clinically examining a specimen of urine are albumen, sugar, casts, blood and pus.

In examining a specimen of urine I invariably estimate the per centum of urea; and we might go further and estimate the ratio of urea to uric acid. Whether or not this would lead to any useful result is questionable. Drs. Hughes and Carter in a series of experiments, some years ago, showed that it was not the non-elimination of the urea that caused disease, but that there was an accompanying poison which caused the mischief.

Bouchard, a French investigator, asserts that the urine contains seven toxic substances; two of these are endowed with the property of causing convulsions, another causes contraction of the pupil, another reduces heat, another is sialogenous in its effect, another is narcotic, and another one is diuretic, and this last substance is probably urea. Urea is toxic only in very large doses—hence we are led to believe that the injurious effects are produced by the substances other than urea.

While this is probably true, yet the amount of urea excreted gives us a fair knowledge of the working power of the kidneys, and is a useful index of the excretory work the kidneys are doing. We must, however, bear in mind that the kidneys may fail to excrete the normal amount of these other substances, and that either one or more of them may be retained and thus produce their toxic action.

HOW TO EXAMINE URINE.

It is not difficult for the physician to make the chemical and microscopical examination of urine. It is necessary that he keep all his testing reagents fresh, and in a convenient place, and that he should know what they are expected to do. It is also necessary to have clear and clean glassware, and a good light.

Most urine will be found to be acid, and this is readily determined by the neutral litmus paper.

The specific gravity of urine varies within wide limits. Generally it is the high specific gravities that we wish explained. The most common causes of high specific gravities are the following: Urea, urates, and sugar. It is well in the examination of the specimen of urine to proceed in a systematic manner. Having noted the color, odor and sediment, if any, carry out the chemical examination as follows: If the urine is not clear, ascertain the cause, then filter it. Test for albumen by means of heat, nitric acid, the brine solution, or Esbach's solution of picric acid. No one test should be relied upon to the exclusion of the rest, but certainly two or more tests should always be applied. The brine test is quite reliable for the detection of traces of albumen, and will often show the presence of albumen when other tests fail. It is applied as follows: Filter the urine until it is clear, add a solution of chloride of sodium until the specific gravity is raised about ten degrees, add one or two drops of strong acetic acid, then boil the upper part of the liquid when the presence of albumen is shown by cloudiness. The ferrocyanide test may also be tried.

If albumen alone is found its approximate quantity may be found by means of Esbach's albuminometer; or the albumen in a certain amount of urine may be coagulated by means of heat and nitric acid and collected on a tarred filter, washed, dried, and weighed. This takes time and besides it is necessary to have an accurate balance. The volumetric method is much easier, much quicker, and the results justs as good for all practical results. A much quicker, and just as accurate for all clinical purposes, is by the centrifugal method proposed by Purdy. The per centum of albumen can thus be estimated in ten minutes.

SUGAR.

Sugar is detected by Fehling's solution: Mix equal parts of No. 1 and No. 2, of Squibb's test, add a small quantity of water, heat to the boiling point, add the urine and boil again, when, if sugar is present in any appreciable quantity, reaction occurs. For a confirmatory test I am in the habit of using the fermentation method. A ready fermentative tube can be made from a test tube. Take a test tube, fit a cork into it, bore a hole through it or cut a nick in the side of the cork. Fill the tube with the urine, drop in a piece of yeast, press in the cork, allowing the urine to escape through the improvised hole, then invert the tube in a beaker of water, and set in a warm place. If sugar is present the CO_2 will collect at the top of the tube, displacing the urine. The percentage of sugar can be readily calculated by the following method: Measure out 5 c. c. each of No. 1 and No. 2 Fehling's solution, dilute to 50 c. c., place in an Erlemeyer flask, heat to the boiling point, and drop in the urine from a burette, until all the blue color is discharged. Then calculate the percentage as follows: Suppose 6 c. c. of urine was required to discharge the blue color; this then equals .05 grammes of grape sugar; then 6:100 :: .05 : .83 per cent. of sugar in the urine.

PEPTONES.

To 5 c. c. of filtered urine, rendered acid (if alkaline) by acetic acid, add as much finely powdered picric acid as can be held on the point of a penknife, heat to boiling and filter while hot. Albumen will remain on the filter, while the peptones and any alkaloids that may be present will be in the filtrate, and will separate out on cooling. Or the following, taken from Hoge: Saturate the urine (first acidified by a few drops of acetic acid), with ammonium sulphate, a precipitate of the different proteids is formed; filter these off. To the filtrate add a saturated solution of picric acid, and peptone alone will be precipitated.

UREA.

The per centum of urea is readily calculated as follows: Take two 150 c. c. wide mouthed bottles connected by rubber tubing attached to bent glass tubes, which pass through the rubber corks and project but slightly below the surface of the corks; in addition to this perforation in the cork of the second bottle there is another one through which passes a bent glass tube, the lower extremity of which almost reaches the bottom of the bottle. It is connected by rubber tubing with a bent glass tube. A graduated cylinder completes the outfit. Proceed as follows: Make about four ounces of a solution of hypobromite of soda, by mixing about 1 c. c. of bromine with four ounces of a solution of caustic soda. Place this in the first bottle, and then by means of a forceps, carefully lower into the same bottle a short glass cylinder containing exactly 5 c. c. of the urine to be examined, being careful not to allow any admixture of the hypobromite solution. Insert the stopper tightly. Fill the second bottle with water, fit the cork in tightly, and some water will escape. Now place the graduated cylinder at the free end of glass tube, tip over the cylinder containing the urine, and the disengagement of the gas will immediately take place, and by its pressure will displace a certain amount of water in the second bottle. At the end of fifteen minutes the process is at an end. Read off the amount of water that has been displaced and which has flowed into the graduated cylinder. Multiply this amount by the factor .0028 and this result by 20 which gives the percentage.

URIC ACID.

The percentage of uric acid may be obtained as follows: Measure 100 c. c. of albumen-free urine into a test tube, mix with it 10 c. c. of strong hydrochloric acid, and set aside for twenty-hours. At the end of this time the uric acid will be found to have crystalized out. The crystals are then collected on a weighed filter, washed with acidulated distilled water, dried and weighed. The weight of the filter subtracted from the whole weight gives the weight of the uric acid, which will also be the per centum.

Dr. H. H. Cook, of Oxford, O., gives the following as a new, rapid and accurate method of estimating uric acid: Place in the graduated tube 10 c. c. of urine, add to this from .5 to 1 gram of sodium carbonate, and from 1 to 2 c. c. of ammonium hydrate. Shake until the sodium carbonate is dissolved; this precipitates the earthy phosphates. Deposit this precipitate with the centrifugal machine, and decant the supernatant urine into another graduated tube. To the clear urine now free from phosphates, add 2 c. c. of ammonium hydrate, and 2 c. c. of ammonic silver solution made by dissolving 5 grams of silver nitrate in 100 c. c. of water and adding ammonia until the solution becomes clear. The addition of the silver solution causes the uric acid to be precipitated as urate of silver. Separate this precipitate with the centrifuge, and pour off the supernatant fluid, add an excess of ammonium hydrate which dissolves the chlorides, and mix thoroughly, then centrifugate, and read off the amount. Each .1 c. c. indicates .001176 grams of uric acid in 10 c. c. of urine. In order to obtain the percentage multiply by .10.

CHLORIDES.

The following illustration is taken from Hoge on "Diagnostic Urinalysis."

Acidify the urine in the test tube with a few drops of nitric acid to prevent the precipitation of phosphate of silver. Add one drop of nitrate of silver solution, 1 to 8. If a white, cheesy, flaky deposit appears, quickly sinking to the bottom, and leaving the urine clear, the chlorides are present in normal amount. If a simple cloudiness appears without forming flakes the chlorides are diminished 1 to 10 per cent. Should no change in color appear, the chlorides are absent. The per centum of chlorides may be quickly calculated by Purdy's centrifugal method.

PHOSPHATES.

The following is also taken from Hoge: The urates (except urate of ammonia), occur in acid urine, while the phosphates are found in alkaline urine. Again the urates disappear on heating; the phosphates are increased.

The earthy phosphates (lime and magnesium) are detected as follows: Fill a test tube one-third full of clear urine. Add a few drops of caustic potash, warm gently, and set aside for fifteen minutes; if the layer of precipitate is .4 of an inch high, the earthy phosphates are present in normal amount, if the layer is .7 to 1 inch they are increased. If only a few flakes appear they are diminished. Filter and add one-third as much magnesium fluid. If the fluid is milky in color they are normal in amount, if creamy they are increased. If very slightly cloudy they are diminished. The per centum of combined phosphates may also be quickly calculated by Purdy's centrifugal method.

SULPHATES.

The sulphates may be estimated by taking 100 c. c. of filtered urine, acidifying with hydrochloric acid, and then adding solution of chloride of barium in excess, collecting the precipitate on a tarred filter, washing, dying and weighing. Purdy's centrifugal method may also be used in estimating the per centum of sulphates.

BILE.

The bile acids can be detected by Pettenhofer's test, as follows: Free the urine of albumen by boiling and filtering; then concentrate the filtrate by evaporation; add several drops of dilute sulphuric acid, and finally a few frains of ordinary sugar, when there results a play of colors, red changing to purple. The bile pigments can be detected by allowing a few drops of the suspected urine to intermingle with several drops of red fuming nitric acid, on a white porcelain surface, and a play of colors, green, blue, violet red and yellow or brown will occur if bile is present.

PUS, BLOOD, ETC.

Pus, blood and spermatozoa are detected by means of the microscope. The centrifuge is here brought into use, and the materials thrown down are examined by a 2-3 or a 1-2 objective. In hemoglobinuria the detection of the coloring matter of the blood is more difficult, and it is usual to apply the guaiacum test, the hemin crystal test, or the spectroscope test.

TUBERCLE BACILLUS.

Occasionally it becomes necessary to examine the urine for the presence of the tubercle bacillus. This is somewhat difficult to do with any degree of certainty. Centrifugate the urine until a sufficient amount of sediment is collected, pour off the supernatant clear portion and transfer some of the sediment to a cover glass, dry, fix, stain, decolorize and counter stain according to methods set forth in author's paper, which see.* At the same time a portion of the sediment can be inoculated into a guinea pig and at the end of three weeks the animal should be killed, and the lymphatic glands, nearest to the site of the inoculation examined for the presence of the tubercle bacillus; generally we find the glands partly broken down, and in the pus we will find the organism searched for.

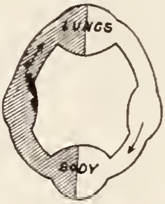
WHY CYCLING, RUNNING, ROWING AND ATHLETICS IF INDULGED IN TO EXCESS ARE HARMFUL.

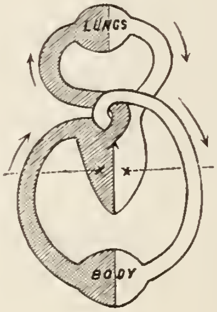
By T. SYDNEY SHORT, M.D. (Lond.), M.R.C.P., D.P.H. (Cantab.).

The title I have chosen for my paper is a comprehensive one, and the subject, unless treated in a somewhat elementary manner, would prove too wide to be dealt with in so short an article. I have, therefore, thought it advisable to indicate the main points only, leaving the secondary ones arising from them to be inferred rather than stated. To this end it has appeared advantageous to divide what I have to say into four divisions, and to consider our subject under the following heads: I.—A brief outline of the anatomy of the circulation. II.—Some points in the physiology of the circulation. III.—The effect of muscular exercise upon the body. IV.—The effect on the expectation of life

I.—A BRIEF OUTLINE OF THE ANATOMY OF THE CIRCULATION.

The motive power of the circulation is the heart. This is a hollow muscular bag of about the size of the closed fist, divided into halves by a partition, so that virtually there are two pumps at work every time the heart beats.





This diagram (Fig. I.) shows the circulation of the body represented as a circle. The two halves of the heart are here separated and become the right and left hearts respectively. The right heart drives the blood through the lungs and onwards to the left heart. The left heart drives it through the body and back to the right heart. The two sides of the heart act quite independently of each other, and are only placed side by side in the thorax for convenience sake. The half of the circle which contains impure blood is shaded. The direction of the blood current is indicated by arrows. In Fig. II. the right and left hearts are joined in one mechanism. It shows a more correct representation of the position of the vessels, with the arch of the aorta arising from the left ventricle and curving round the main vessels which takes the blood from the right side to the lungs, i. e., the pulmonary artery.

At every beat each side of the heart gives its quota of blood just sufficient impetus to reach the other side but no more.

What we call the beat of the heart is the contraction of the muscular walls on their contents; and it is by this means that the blood is forced into the vessels. The vessels are a series of tubes passing all over the body. One end of the system of tube enters the right side of the heart and the other leaves the left. The right side of the heart pumps the blood through the lungs and back to the left side, where it is again pumped by this side through all the tissues of the body. It requires more force to pump the blood through the whole of the body than through the lungs, consequently the left side of the heart is stronger than the right. To complete a revolution of the circulation all the blood must pass twice through the heart, because it has to get a second impetus after traversing the body in order to keep sufficient "way" on to pass through the lungs without coming to a standstill. The tubes by which the blood leaves the heart are called arteries; those by which it returns are called veins.

It would be out of place for me to give here a detailed account of the circulatory system, but there are two points in the mechanism of the blood-flow which must be referred to, because without such reference the effect of exercise upon the heart and vessels cannot be properly understood. The first is this: That since the blood is continually moving in an onward direction, a balance must be maintained between the amount which leaves the heart and the amount which returns from the vessels. Should any factor disturb this balance, one side of the heart must get over-full, because it is clear that if life is to continue, no block can be allowed to occur in the circuit. The factor which we are especially concerned with to-night (as I shall explain presently) is the sluggishness of the blood through the lungs, due to the fact that the blood cannot be purified quickly enough if it is sent so fast through the lungs that it has not time to be properly charged with the oxygen of the air. Now it happens that the tubes in the lungs are loth to let it pass unless properly purified, so that there is a tendency for it to accumulate. In order to obviate this the heart must beat more strongly. If it can do this all well and good, but if it gets tired the cavity of the heart must get over-full so long as the current continues flowing onwards, because it cannot drive the full amount into the lungs, and yet it receives just the same amount as usual from the body. We all know that if the waste pipe of a bath does not let off as much water as the supply tap pours in, the bath will get over-full.

The second point I shall take is this: The blood is pumped out of the heart in small quantities at a time with a fraction of a second's interval between each beat. An ingenious contrivance, however, prevents the blood being pumped along the vessels in this interrupted manner. The walls of the vessels are elastic, and not only expand as each heartful is thrown into them, but contract on it afterwards. Many people have the erroneous idea that by elasticity is meant the power of expanding under a given force. This is only half the quality; it includes also the return to the original shape. Thus the india-rubber bladder attached to this squeaker can be blown out to twice its original size, but it is the returning current produced by the contraction of the rubber due to its elasticity which produces the pleasing result you hear. A glass tube heated in a blowpipe can also be blown out to a similar size, but it remains a glass globe, and there is no return to its original shape. This then is not elasticity. The walls of the arteries are elastic, so that when the sudden rush of blood from the heart expands them they contract down again gradually on their contents and force the blood onwards in a continuous stream.

This throat spray owes the continual production of its nebula to the same cause. You will notice that between the bottle containing the solution and the ball squeezed in the hand there is an elastic expansion of the tube covered with netting. This represents the elastic recoil of the arteries, and you will observe that if I now allow the expanded part of the tube to become flat the cloud ceases to be regularly produced, and the spray spits it out in jets.

When the arterial walls are diseased they lose this quality of elasticity, and the blood tends to be driven along in jerks, jerks which strike the distant parts of the circulation like a hammer, and woe betide the vessels if they have a weak spot anywhere which gives way under the hammer-stroke.

Observe then, firstly, that any difficulty in breathing tends to overfill the heart, and, secondly, that a jerky flow of the blood is prevented by elasticity in the walls of the vessel.

II.—SOME POINTS IN THE PHYSIOLOGY OF THE CIRCULATION.

This brief sketch of the anatomy of the heart and blood vessels brings us to the manner in which their functions are performed, i. e., to the physiology of the organ of circulation.

If we perform any movement which requires more than the customary muscular action the muscles involved make a call for more blood. The blood is their food. Now, as the amount of blood in the body is limited, this extra amount can only be supplied by passing more of it through the muscles in an equal time. In order to accomplish this the heart must beat more quickly. But the rapid flow of blood takes place all over the body, and naturally the lungs participate in it. It will be seen at once that if the blood flow through the lungs be increased the air supply must also be increased if the blood is to be properly purified. The amount of air entering the chest is therefore augmented and this is brought about by the breathing becoming more rapid. After a time a stage is reached when this becomes unpleasantly noticeable. This condition we call "getting out of breath." It is a signal for the muscular movement to stop. When this is done the demand for fresh relays of blood is lessened, the heart beats less rapidly, the breathing gradually sinks to the usual rate, and the normal condition is resumed.

But supposing the muscular movement is not stopped, what happens then? There are two things which may happen, and we will take them in turn. In the first place, if the owner has youth and health on his side the heart is enabled to adapt itself to the altered circumstances. If the blood is not to stagnate the heart must keep on beating faster. There is, however, a limit to its rate compatable with safety, so that instead of still putting on pace, a heart which is strong and healthy responds not by beating still faster but by contracting more powerfully. Each beat sends the blood through the vessels at a higher pressure. Provided that the muscular movements of the body (though still continuing) do not increase in energy, a balance is struck, and the heart and breathing settle down to a regular rhythm, increased certainly over the normal, but not disagreeably so. What I have just been relating in the language of Physiology is precisely what is known to every school boy in the language of colloquialism as "getting his second wind." Everyone who has run in a school paperchase knows that a time comes not long after he has started, when breathlessness ensues. At this point his experience teaches him that if he can slacken a little, without actually stopping, he feels quite clearly when the balance I have referred to has been struck. A feeling of ease in the chest comes to him, and he goes on comfortably for a long time. He also learns that if this feeling does not come to him he must stop altogether or he will break down. The second thing that may happen, if the muscular movement is not stopped, is brought about by the inability of the heart to make this response. In this second case the wall of the heart, either from the weakness incidental to age or from previous disease, cannot make the extra effort, and if danger is to be averted the muscular movement must be stopped without delay. If not, the heart gets choke-full. Sometimes it settles the matter at once by stopping itself.

It will be clear that what we want is to keep the heart in its young and healthy condition all through life. We can't prevent some change due to age taking place, but we can prevent the wall being over-distended by our own silly action. Not only so, but we can train it so that precisely at the point when it is likely to become over-full it shall answer the call and increase in power. In order to do this, however, it should never be allowed, even for a single occasion to become over-full, because if the walls are once stretched beyond their limit the muscle fibers are weakened, and they may never quite recover.

So much for the heart, now for the vessels. When the heart puts forth more strength more blood is sent into the vessels, and they in their turn become over-full. The expansile walls dilate to make room, each vessel giving a little, so that altogether they accommodate the extra supply. But here, again, there is a limit. If the vessel walls are springy and in good condition no harm accrues unless the heart presses them too far; if it does, they in their turn become over-distended; their elastic fibers are stretched just a little too far, and when the strain is over they never return to their former size. We can actually see sometimes that this has been the case; for a stretched artery, if it originally took a straight course, must take a wavy one to accommodate its news length, and the result is a tortuous artery.

If the vessels walls have lost some of their springiness either from previous strain or from disease they cannot in the first place expand so far without danger of rupture, and they have in the second still less chance of resuming their normal condition even if they manage to expand a little without breaking.

You will see from this that continual strains upon the walls of the heart and of the blood vessels must in time damage their power and elasticity. I say continual strains, but continual exercises short of strains will actually do them good. We all know that if a thing is to be kept in good condition it must be used. Periodical exercise, which always stops short of the point where strain begins, strengthens the walls of the heart and vessels, keep their elastic walls in good condition, and teaches them to respond quickly to the need of extra blood current, neither hesitating to dilate when called upon nor failing to close down again upon their contents when the ebb of the surplus flow commences and relief to their tension is at hand.

III.—THE EFFECT OF EXERCISE UPON THE BODY.

Let us now apply these few anatomical and physiological principles to the subject under immediate discussion, viz., the effect of exercise upon the body.

Different forms of exercise affect the various parts of the system in different degrees. Thus, all forms of running require a good heart, but while sprinting depends principally on the legs, long distance running is really achieved by the lungs and heart far more than by the lower extremities. In mountaineering it is the nervous system that bears the strain, in rowing the respiratory, while in cycling the heart and blood vessels bear the brunt of the battle.

Without forgetting that all forms of muscular exercise, which cause the rate of the heart to be increased are likely to produce an overstrain of that organ, we may especially take cycling for the purposes of this address, because in this special exercise it is the heart and vessels that suffer long before any other part of the body. The first marked physiological effect that is noticed in cycling is an increased frequency of the pulse, even when the cyclist is riding on level ground. Should an incline be now negotiated, long before any stress in breathing is felt, the heart is beating at a rate that is comparable to fever rate. There are many people who would be almost horrified if they knew the rate at which their hearts were beating during the greater part of an afternoon's ride. This is one of the peculiarities of the exercise in question. All riders know that when they are even in quite moderate form a run of say twenty miles can be accomplished on a Saturday afternoon without the slightest feeling of muscular fatigue, or even a suspicion of being out of breath. On a moment's reflection, however, it must be clear to everyone that the work of taking the body weight over the twenty miles has been done, and some part of the organism must have borne the burden. That part is the circulatory system.

In this connection we must consider first what is the effect of moderate exercise on the heart and vessels. It is a beneficial one. All muscles are better for being exercised regularly and with reason. There are times when every one requires a little extra work from the heart, and at such times it would be inconvenient to be refused. If we happen to run upstairs, or hurry to catch a train, to say nothing of carrying a few books from one room to another, we don't want to sit down and pant till we get our breath again. We want to train the heart and vessels to bear a little over-distension from time to time, and by a few firm and decided beats to establish an equilibrium between the blood and air in the lungs without even calling our attention to the matter. This is what exercise does for us; but to ensure that end it must be moderate, systematic and regular. An outburst from time to time is of no value as a training. It finds the system unprepared, and may leave it even still more unprotected.

Next we must turn our attention to the effect of exercise which is more severe than that understood as moderate. Here there are two points to be considered: First, the effect of a severe test acting during a short time, and second, the long continuation of a condition which would scarcely be a test were it not abnormally prolonged. In the former it is power against great resistance for a short period; in the latter power against a slight resistance for a long period. Let us take examples of these two. We will suppose that a rider has had a stiff pull up a short but steep hill, and reaches the top distinctly out of breath. What has happened? There is just beginning to be distension of his heart from over-fullness. If he rests now, and if his heart muscle is healthy, it will only be a few moments before the over-fullness has been worked off, and all goes on as before. If the heart be not healthy it will take longer, and the length of time will be proportionate to its defect. Suppose, however, he does not rest, but goes on up another hill. Either his heart must strike a balance with the lungs or he must stop altogether; there is no other alternative. Suppose, however, for a third event that he goes, not up a hill, but along a good level road. Much less exertion is now required, and this produces a marked feeling of relief, so that the average rider feels no want of rest. This feeling of relief, however, is fallacious. It does not mean that the heart is getting sufficient rest to get back its beats; it only means that it is not working quite so hard as before. Here again, the result depends upon the condition of the heart. If healthy it rights itself after a mile or two, not after a few moments, be it observed. If defective, it may not get quite to the normal condition for a long time, perhaps not till the rider has reached home and been in bed several hours.

The second condition that I mentioned, viz., long-continued slight resistance, is well exemplified during touring. Perhaps for several days the rider never has his pulse down to the normal all day after he has once mounted. It may not be much raised, but still the slight elevation continues without relief. When it is remembered that the only rest the heart ever gets all through life is that little interval between each two beats, it will be seen that quickening the beats during the whole day, even if only by a little, will weary out the stoutest heart in time.

These two conditions that I have taken, viz., the short hard test and the slighter but more prolonged, will hold good for all forms of muscular exercise. Take any exercise you like, the same facts hold good, and the effect will be similar.

From what I have said under the head of Physiology it will be seen that even healthy systems will be liable to gradual over-stretching of the walls of the heart and vessels with deterioration of their elasticity. The walls become less powerful and less expansile, more attenuated and more brittle. There can be no doubt that amongst the numbers who cycle at the present time there are many who are subjecting themselves to these conditions simply because they will not keep the exercise within bounds. It is a seductive pastime, and the pleasurable feeling produced by rapid movement through the air lulls the senses into an oblivion which disregards slight warnings of fatigue.

IV.—EFFECT ON THE EXPECTATION OF LIFE.

We are now in a position to gather up the different threads of our argument and follow the resulting line in the direction of the effect of all this on the expectation of life. In other words, when does muscular exercise do good and when does it do harm?

It will simplify matters if we divide the takers of exercise into three classes, remembering of course that the dividing lines between these classes must not be too strictly drawn. First then let us take the class of those whose muscles want exercise badly because they don't get enough. This class is a very large one. It includes all those whose blood is not up to the standard in quality, below proof as we may say, and whose muscles, therefore, are always just efficient in nutrition. There are thousands of people in every town who are in this condition. Not only anemics, or those whose blood is too watery, and whose faces show it, but also those whose pallor is scarcely noticeable until holiday time comes and they show up somewhat sickly by the side of colleagues who have just returned from the sea or moor. It includes the large army of sedentaries who can't get much exercise simply because they haven't time, and when they have they lack the energy to make a start. In all these cases the heart muscle is not really diseased, but it is pale and flabby and soon gets tired. Moderate exercise improves its nutrition on the principle that the more firmly a muscle contracts the more blood it squeezes through its fibers and the more nourishment they get. If this exercise be pushed too far this class of case soon gets the heart distended because its walls have not much tone. The want of training to quick and ready response shows itself in an inability to cope with an urgent call, and both the heart and vessels may be strained. Violent efforts are especially bad for these cases as the distension produced all through the circulatory system may never really get cured. In this, our first class then, muscular exercise is of great value, but it must be moderate, frequently repeated, and regular, otherwise it does more harm than good.

The second class I would take would be that of the large number of men who keep all their muscles in good condition regularly and who can, instancing cycling again, ride their fifty miles any day without feeling any bad effect; in other words—the athletes. In their case regular exercise is essential to keep them up to their normal level. This regular training they have undergone has already produced its beneficial action and they are enjoying the result. In this class an extra amount of muscular work which would strain our first class is rapidly recovered from, and so long as the limit is not overstepped actually does them good and prepares them for more strenuous labor in the future. The special danger to this class is a long continuation of slight over-degrees of strain which tire out the resistance of the vessels' walls. Throughout the whole body the arteries gradually get a little too big, the walls a little too thin, while the heart probably remains strong and vigorous. The continual strong pumping of the blood finds out a weak place and the vessel wall begins to give. The result is a swelling or bulging of the artery in which the blood churns and eddies, making things worse at every beat, until the bulging becomes a pouch in the wall of the vessel communicating with its interior. This is what is called an aneurism. Soldiers, sailor, laborers, platelayers, blacksmiths, these are types of men who lead healthy vigorous lives, probably not remembering any occasion when they could have strained themselves. the long continued stress however, of their life-work gradually produces an effect which shortens their existence in the long run.

The position of the veins, that is, their separation from the arteries by means of the very fine connecting vessels of the tissues which we call capillaries protects them from overdistention due to increased heart power. But as the blood pressure in the veins is thus much lower than in the arteries they are more liable to overdistension when any force operates against the flow of blood in them. The force of gravitation may do this where the returning blood has to flow upwards, as it does in the legs. This is especially the case when tight garters still further impede the blood current. The result is the swelling of the veins of the leg known as "varicose veins." In this case, however, provided the arteries are healthy, the increased blood pressure actually does good. The veins bring the blood back to the heart, and consequently the power of the heart has nearly lost its effect towards the end of the circuit. It is the arteries commencing the circuit which bear the brunt of the hammer-like blows of the ventricle of a powerful and manly heart. It is their distance from the heart which lends protection to the veins. A regular daily amount of exercise greatly benefits sluggishness in the veins by pumping the blood through the distended vessels and counteracting the tendency to stagnation. If the varicosity is not excessive cycling, or any other exercise which stimulates the heart, may greatly relieve the condition of distended veins.

In our last class, the third, I would place all those who have some defect in the vessels—some real disease. This class I would call the defectives. It does not follow in such cases that all exercise must be tabooed. A man with an affected valve in his heart cannot have a new one and must put up with what he has got. If he can strengthen it sufficiently to counter-balance the leak in the valve he really need not suffer very much from it. Can this be done? In many cases it can. Suitably arranged muscular exercises can be taught him until he has built up his heart sufficiently to allow of his taking moderate exercise quite comfortably. These cases often live a long time, there is one thing that saves them, they know they must be careful and they never run the risk of over-doing it. A forgetfulness at any time of this fact and one of this class would damage his heart probably beyond any further succor, and from that time his days would be numbered. It would lead me too far from my subject to state here precisely the cases of heart disease which are benefited by muscular exercise and which are not, but I may say that there are very few cases which cannot be trained to perform the ordinary work of a quiet life—for many this alone is exercise enough.

When actual disease is present in the circulating system muscular exercise must be enjoyed with caution and sudden strains are particularly dangerous. This is especially the case if the disease be in the arterial walls. There is one disease, far from being rare, called atheroma, which affects the elastic walls, making them brittle and easily perforated. There are many causes to which this condition may be due, but when once present its results are the same. The artery loses the springy elastic feel and becomes rough, hard and even gritty. The pulse feels like the twig of a tree. Here is a portion of the main artery of the body—the aorta—of a man who suffered from this disease. It ought to feel like a thin layer of cartilage such as we are familiar with in the lobe of the ear, instead of which it is hard and brittle, and in several places sharp gritty particles can be distinctly felt between the examining finger and thumb. Arteries of this kind don't bear much strain, especially when it is put on suddenly. They may break, and when this occurs, as it often does in the arteries of the brain, the blood ploughs up the soft cerebral substance. The breaking of a blood vessel in the brain, or as we call it, an apopletic stroke, is the result. It is the sudden pressure of the augmented pump-stroke that does the damage. Vessels that have been strained in early life are especially liable to become brittle later, so that the real cause of the sudden death may have been commenced years before.

When we come to the practical part of our professional work we find that, as in all matters medical, cases must be taken individually and studied from the standpoint of each particular individual and not from that of any class or tribe. It is impossible to label all one class "first class," all another "load five years," all another "ten years," and so on. I know this is what insurance offices would like and it certainly has the attraction of simplicity, but it can't be done, and if it could the results would be all wrong. When carefully reviewing in my mind a case that I have before me, weighing evidence of the family history, the personal history, and the probability whether they are true or not, or whether I am being deceived; the facts or suppositions arising from my own examination, with a calm deliberation as to the real value of that particular life, I often seem to hear the Spirit of the Office give a gentle rap on the desk at my side whispering, "Come, what is it to be, five years, ten years? Give it a name, we don't want any 'ifs.'" No, you want something definite, and we can only give you that by bringing the whole of the training of a lifetime to bear on each case. When the question of exercise is broached we must form an opinion as to how much the individual has taken, never mind what he says, people sometimes color their accounts a little to examiners, then how much he ought to have taken; secondly, how much he takes now, whether it is enough, too much, or too little; and finally what he is capable of taking in the future and whether, judging from his temperament, he will exceed it or not. When we come to consider that to each of these queries a mental answer of some kind must be made, we must admit that the expectancy of life is greatly influenced by the amount of muscular exercise taken.

GAILLARD'S MEDICAL JOURNAL.

A MONTHLY JOURNAL OF MEDICINE AND SURGERY

Scientia et Veritas Sine Timore.

PUBLISHED BY THE NEW YORK MEDICAL PUBLISHING CO.,
220 Broadway, NEW YORK.

All communications, of either business or editorial character, should be addressed to Gaillard's Medical Journal, 220 Broadway, New York.

Articles for publication will be received with the understanding that they are contributed exclusively to this journal. Reprints will be furnished at actual cost, orders for which should accompany the manuscript. Authors of accepted articles may receive twelve copies of the issue in which they are published. Necessary illustrations will be furnished without expense to authors when suitable drawings or photographs are furnished.

EDITORIAL.

In a recent issue of *American Medicine,* its editor indulges in an entertaining but somewhat hysterical tirade against trained nurses in general and lady superintendents in particular. The "impertiveness of nurses, the way they have showing up the ignorance of the general practitioner, of advertising themselves, of becoming physicians in all but name, or at least in switching cases out of the general physician's hands into those of the more favored consultant," etc These, these are the stimuli that have thrown our esteemed contemporary into the clonic spasm of speech that finishes his editorial.

We sympathize with him, but we would beg him to be calm. There are ignorant, impertinent and meddlesome women engaged in professional nursing, no doubt, but that the average nurse has any desire to crowd the physician we do not believe. A theory that the sad condition hereinabove alluded to is due to the over-education of nurses is mentioned also. This, we beg leave to state, is absolutely ridiculous, and would refer anyone who doubts it to the books written for nurses—notably those by Miss Emily A. M. Storey. Her dogmatic statements of half and quarter truths are scattered through most of the training schools of the country—the little knowledge that is a dangerous thing. We believe that the profession would find it to its advantage to take a more active part in the training of the women whom it expects to know at once so much and so little. In any case let us remember that as physicians it is our privilege to command the respect and loyalty of both nurse and patient, and that nurses whose services are unsatisfactory may be removed. And above all let us be calm, even in Philadelphia.

THE MEDICAL ASPECT OF APPENDICITIS.

At the semi-annual meeting of the Medical Society of the State of New York, held in this city last month, Dr. W. E. Ford, of Utica, read a paper upon this subject, and in the discussion which followed Dr. Herman Mynter, of Buffalo, made the assertion that there was no medical aspect of appendicitis. The statistics furnished by certain writers that the mortality of appendicitis under medical treatment is 20 per cent. he regarded as absurd. As a matter of fact, it is a great deal higher. From 65 to 75 per cent. would probably be nearer the truth. The 20 per cent. represents the serious cases, while the remaining 80 per cent. would probably have recovered without treatment other than simple quiet in bed. Relapses may be expected in about 50 per cent. of those that recovered, and among these we will again have a mortality of at least 20 per cent. if medical treatment is relied upon. Dr. Mynter said he had yet to see a serious case of appendicitis recover under medical treatment. Dr. Robert T. Morris, of New York, who continued the discussion, said that the term "catarrhal" appendicitis is one of the most fatal words in our nomenclature. Every case probably begins as one of catarrhal appendicitis, but there are no symptoms until the disease has passed beyond that stage.

The question whether appendicitis belongs to the domain of the surgeon or the physician, or both, has been the source of much heated controversy. Many surgeons believe, like Dr. Mynter, that every case of appendicitis should be turned over to the surgeon; that it has no medical aspect. There are others, less radical, who believe that only certain cases require the attendance of the surgeon. On the other hand, there are certain physicians who do not hesitate to say that many cases of appendicitis, in fact, the majority, would fare better at the hand of the physician than the surgeon. This latter view is taken in a communication by Dr. Beverly Robinson, of this city, which recently appeared in the New York Medical Journal. The writer states that for many years he has been one of those practitioners who firmly believe that in appendicitis, as in many diseases, the medical aspects of the case are given too little importance, the surgical side far too much. From the broadest standpoint, there is scarcely a single absolutely surgical disease. If the different organs of our body were merely inserted for the purpose of removal or modification or adornment by means of the knife we might, perhaps, see the justice of such a view, but it cannot be admitted if we are convinced that there is no organ which is without its distinct function. Because we do not know as yet what the function is, is no reason to deny its existence. Because we are ignorant or groping, let us search until we have more light. Dr. Robinson further says that to the watchful and studious observer, the operation for appendicitis is an exaggeration many times, because it eliminates far too much the immense importance of prophylaxis and judicious medical care before the surgeon's knife should be thought of. He believes that no surgical operation should ever be performed in any direction or upon any organ without previous consultation with a general practitioner of prominence and wide experience. In this way we should see the bright day occur when he, the master hand, shall again assume control of all specialties, even general surgery included. In other words, the medical clinician is the man to be foremost in the public eye and properly appreciated always, because it is his due and rightful heritage, and not, as now, to be assigned a relatively inferior position.

While the view taken by Dr. Robinson in support of the medical side of this question is perhaps a trifle too radical, it is a fact that the surgeon has assumed too important a rôle in connection with appendicitis, to the exclusion of the physician and not always to the benefit of the patient. While appendicitis is by no means a rare disease, it is not so common as many surgeons would lead us to believe. In a recent communication received from Dr. Philip F. O'Hanlon, whose work in connection with the coroner's office in this city is well known, he says:

"Appendicitis belongs to a class of diseases which we often read about but seldom see at autopsy. Again and again I know of cases where a diagnosis of appendicitis was made upon the strength of pain in the right iliac region and some gastro-intestinal symptoms, all of which promptly disappeared after a dose of castor oil. Among 3,000 autopsies made by me during the past seven years I have only seen 10 cases of appendicitis. I had 42 cases sent to me for autopsy which had been diagnosed as appendicitis; in 10 of them I found a greatly distended colon, but no lesion of the appendix, either gross or microscopical, could be discovered, and in the remaining 32 even the distension of the colon was absent and the appendix was normal."

During the past year a number of cases of typhoid fever have been reported which were mistaken for appendicitis and operated on as such. An operative wound complicating typhoid fever of course seriously hampers the treatment of the case, especially if cold baths are indicated. Among other conditions which have been mistaken for appendicitis and operated upon are various pelvic troubles, pancreatitis, hepatic conditions and other intra-abdominal lesions.

Dr. Brewer, of this city, recently reported two cases of renal valculi, producing pain, nausea and vomiting, and unaccompanied by hematuria, vesical irritation or tenderness in the lumbar region, which were operated on for appendicitis.

THE EVIL OF SUBSTITUTION.

Many suggestions relative to obviating this despicable custom among many retail druggists have appeared among the editorials of the medical press, but most of them have lacked the practicality so essential for success in a movement of this kind. Dr. J. D. Williams, of New York, in a contribution to one of our exchanges has made some very valuable suggestions among which we quote:

"There can be no subject of more importance to physicians than the violation of their confidence on the part of a dishonest dispensing druggist. Law will not make a dishonest man honest, but the right law properly executed will prevent a criminal's further infliction of injury upon society. The requirement of a license to all druggists who dispense drugs or medicines, revokable upon the licensee's being convicted of substituting any ingredient drug or medicine other than, and in lieu or instead of, that specified in the prescription, order or request in writing, of any physician, would go a long way to aid in the matter of honestly filling prescriptions. Let the medical societies induce their respective State Legislatures to enact a law requiring such a license, with a simple and practical procedure for establishing the guilt and enforcing the penalty against infraction, and the practice of substitution would soon cease.

Let proceedings for revocation of license be before the court, board, or officer, empowered to issue the license, and be set in motion at the relation of either the Board of Health a local medical society, or the purchaser upon whom the fraud and imposition had been done, or of the physician by whom the prescription or order was issued or given, or of any person, firm or corporation for whose brand or make of drug or medicine the substitution had been perpetrated. Let the licensing board, court, or officer be empowered to issue citations, subpenas for witnesses, to administer oaths, and be given all other requisite powers for duly trying the issues and revoking the license of the guilty. These conclusions are logical, and we congratulate the action; we think, however, that he should have made his suggestion relative to making the austere healths boards the prosecuting power a little stronger. This method is our chief hope.

Book Reviews.

THE HYGIENE OF TRANSMISSIBLE DISEASES: Their Causation, Modes of Dissemination and Methods of Prevention. By A. C. Abbott, M.D., Professor of Hygiene and Bacteriology, University of Pennsylvania. Third edition, revised and enlarged. Octavo, 351 pages, with numerous illustrations. Philadelphia and London: W. B. Sanders & Company. Cloth, $2.50 net.

During the interval that has elapsed since the appearance of the first edition, investigations upon the modes of dissemination of certain of the specific infections have been conspicuously active, and through them much new light has been shed and many novel suggestions have been made; especially is this the case with regard to the roles of insects and rodents as disseminating factors. Wherever practicable, these views have been embodied and discussed. The sections especially in malaria, yellow fever, plague, filariasis, dysentery and tuberculosis have been both revised and enlarged.

A TEXT-BOOK OF THE PRACTICE OF MEDICINE. By Dr. Hermann Eichhoust, Professor of Special Pathology and Therapeutics, and Director of the Medical Clinic in the University of Zurich. Authorized translation from the German, edited by Augustus A. Eshner, M.D., Professor of Clinical Medicine in the Philadelphia Polyclinic; Physician to the Philadelphia Hospital, etc., etc., etc. In two volumes, p.p. 1218, illustrations 169. W. B. Saunders & Co., Philadelphia and London. Cloth.

This book was written, so the preface informs us, for Dr. Eichhorst's students, and the English translation bears internal evidence that it too is intended for use as a text-book. The arrangement of the book is somewhat different from the books on the practice of medicine already on our shelves. The author begins with "Diseases of the Circulatory Organs," under which heading are considered Diseases of the Myocardium, Endocardium, and Pericardium; Cardiac Neuroses, and Diseases of the Aorta. No mention is made of Aneurisms of vessels other than the Aorta, nor of any other vascular disease.

Sections upon the Diseases of the Respiratory and Digestive Organs follow. The sub-section upon animal parasites of the intestines is more than usually full. In the section upon Diseases of the Genito Urinary Organs, that follows, the classification of Kidney Diseases is as confusing as that subject is as a rule. The author informs us that "the transformation of acute into acute chronic nephritis is of rare occurrence." We hope the disease occurs only in translation.

The section upon Nervous Disease is quite full, although the discussion of many diseases is necessarily brief. A thoroughly classified resumé of skin diseases follows. The section upon Diseases of the Spleen and Blood is brief, as is also that upon Disorders of Metabolism.

The Infectious Diseases fill the last pages of the book, thus reversing the order usually followed here. Herpes Zoster is described as an acute infectious. Xanthema and Dengue and Yellow Fever are not described at all.

The editor, Dr. Eshner, and the unnamed translator are to be congratulated upon the smoothness and clearness of the text. There is very little of that inversion of the natural English order so often met in translations from the German. The book is rigorously classified and sub-classified throughout—a good thing in a text-book, but in this work it seems to us, carried a little beyond its usefulness. The typography of the book is somewhat remarkable in that upon every page, at intervals of a few lines, words or groups of words, are italicized or printed in heavy-faced type, as the case may be. We suppose that this is to save time and labor for students who underscore. At any rate it mars the appearance of the page. It is well printed and bound. The illustrations of animal parasites, both those of the intestines and the skin, are large and numerous.

SAUNDERS' QUESTION COMPEND. Essentials of Refraction and of Diseases of the Eye, with a consideration of Ocular injuries and the Ocular symptoms of General Diseases. By Edward Jackson, A.M., M.D., Emeritus Professor of Diseases of the Eye in the Philadelphia Polyclinic, etc., etc., etc. Third edition. Revised and enlarged, 82 illustration, pp. 250. Philadelphia and London: W. B. Saunders & Co. Cloth, $1.00 net.

A third edition of Dr. Jackson's excellent little manual, with additions in several chapters, has come to us. The Injuries of the Eye, the ocular symptoms of General Diseases, and the Tests and Requirements of Vision for Public Service, Railroads and Schools are new features of the book. The book and the series are too well known to every one who has a medical examination to pass to need comment.

ATLAS AND EPITOME OF OPHTHALMOSCOPY AND OPHTHALMOSCOPIC DIAGNOSIS. By Prof. Dr. O. Haab, Director of the Eye Clinic in Zurich. From the Third Revised and Enlarged German Edition. Edited by Geo. E. de Schweinitz, Professor of Ophthalmology, Jefferson Medical College, Philadelphia. With 152 colored lithographic illustrations and 85 pages of text. Philadelphia and London: W. R. Saunders & Co., 1901. Price, $3.00 net.

In the valuable series of Hand Atlases which the Messrs. Saunders are now engaged in publishing, this little book appears to us to stand easily first. The beauty of the plates and the terse and satisfactory comment make up a manual that cannot fail to be of service to the teacher, the beginner and to the advanced student in ophthalmology.

GAILLARD'S MEDICAL JOURNAL.

VOL. LXXV. NEW YORK, DECEMBER, 1901. No. 6.

THE RELATION OF OUTDOOR LIFE TO HIGH ALTITUDE THERAPY.*

By CHARLES DENISON, A.M., M.D., Denver, Col.

By the consideration of this subject it is hoped to answer a question proposed for solution, namely, Do unhygienic conditions in high and low altitudes differently affect the susceptibility of persons to tubercular infection?

If the pure dry air of Colorado is good for anything, it is certainly so out in the open and not in confined space.

Eliminate the factors—ample space and sunshine—and no one, that I know of, claims superiority for the climate of Colorado, for such a claim can not be successfully maintained. The disadvantage due to the loss of oxygen in a confined space, will more than counterbalance any good mechanical effect of lessened atmospheric pressure upon the blood circulation or upon the respiratory organs.

Outdoor life, then, is the essential condition of benefit. I propose to show not only its increased advantage through altitude, but that this enhancement comes through attributes or effects which act oppositely upon unhygienic conditions when these, as is usually the case, are associated with confined space. That is, the good results of outdoor life and the bad results of deficient ventilation are both increased by altitude. The prominence thus given to outdoor life and to deficient ventilation is perfectly apparent. For lack of time to here consider the proof of this, I shall have to refer to my paper on "Degenerative Results of Deficient Ventilation."† The importance of these two cardinal points is, however, generally admitted, though insufficiently appreciated. Then we ask—

1st. How does it happen that life out of doors is enhanced by altitude? The answer is through its perfection in quality and its facility in use. All the attributes which go to make up the weather are favored by a rightly chosen altitude. A choice must be made, for we have no intention of defending the extremes, either in Alaska, under the equator, or in Colorado. If the locality is appropriate the dryness of the atmosphere is likewise characteristic of the soil. The decreased cloudiness and long continuance of the sunshine, through the diathermancy of the air, is greatly enhanced. The stimulation of the cooling temperature with altitude, the increased heart action resulting and the mechanical effect of the lessened atmospheric pressure upon the blood circulation, giving an onward push to the pulmonary currents and favoring a more complete capillary flow, especially within the thorax; the easy transpiration of vapor from the body, especially through the lungs by means of the contrast in temperature between that of the body and the circumambient air, and the increased moisture absorbing quality of the latter are important features. The free and constant motion of the atmosphere, the quick radiation of heat from all surfaces, and its heightened electrical state, vivifying the air through its free static electricity and the resulting production of ozone: All of these, in fact almost every favorable quality of climate, are enhanced in their effect by an appropriate degree of air rarefaction; provided the counter condition is secured, namely, increased freedom of action and proportionate receptivity of the individual.

---

* Read before the Colorado State Medical Society, June, 1901.

† Transactions American Climatological Association, 1900.

But this freedom of physical life, with its resultant bodily resistance to disease, especially to dyscrasic one like tuberculosis, is only possible in its perfection when enjoyed in the open. Then the cure of pulmonary tuberculosis, as well as its hygienic prevention, is established on a right basis.

2d. How is it that the bad effect of deficient ventilation (which I believe is the main predisposing cause of tuberculosis) is increased by altitude? If there are impurities in the air, rarefaction would seem, on first thought, to thin them out and dissipate them. But it is not so much any defects pre-existing in the atmosphere which are dangerous, as it is the poisons we add by living in and breathing it. A barnyard with the sun shining on it may be a heaven of health compared with a closed rosewood palace with the influence of the sun disbarred. It is the starvation of oxygen produced by air rarefaction which magnifies the evil effects of deficient ventilation.

You may say, with Parke's Practical Hygiene as authority, that the deprivation of oxygen is not felt ordinarily by healthy human beings till a loss of 14 per cent. is reached; and I may reply, that the amount of oxygen which can be absorbed is limited any way, and that even when breathing pure oxygen saturation is only sooner reached than when breathing the ordinary air. (Curtis.) This does not, however, make much difference with the general proposition that for a given lessened barometric pressure a proportionately greater bulk of air must be breathed in order to get the equivalent amount of oxygen. In other words, to maintain the *status quo* of even deficient ventilation in the altitudes a proportionate additional space should be allowed for all sleeping and living rooms.

Imagine a hospital at sea level, built, say, for fifty patients, with an allowance of 2,000 cubic feet per person. Suppose this hospital were moved intact to a little more than a mile above the sea, say, between Denver and the eastern base of the mountains, where the barometric pressure is reduced to twelve pounds to the square inch, a loss of three pounds, or one-fifth. Without free ventilation that hospital must be enlarged to contain 120,000 cubic feet of space in the patients' wards instead of 100,000 as before, in order to give them the same amount of oxygen on which to live.

The mechanical effect of the thinned air upon the functioned action of the heart and lungs could not compensate for the loss of oxygen in the closed rooms thus limited in size. In fact, by use the dead air point would be sooner reached without ventilation than at sea level. As the life of the air depends upon its free ventilation, that the vivifying influence of the sun may never be wholly shut out, so the hygienic prevention of tuberculosis comes to hinge upon this condition, free ventilation; and out-of-door life is even more a *sine qua non* of successful existence in high altiudes than it is at sea level.

A consideration of the altitude of approximate immunity from tuberculosis confirms this contention. A study of the very few cases of tuberculosis which, with the advancing of our defective civilization, do happen to occur in Colorado should and does, as I will show, harmonize perfectly with this idea.

I do not suppose there is any one so foolish as to claim an absolute immunity to tuberculosis infection for any elevation.

In a State like Colorado, where so many invalids seek restoration to health, and where opportunities for contamination by the germ are so plentiful, why should not some of the many sources of infection prove effective? There is nothing in the climate to guarantee that broncho or grip-pneumonia, an imperfectly recovering typhoid fever, a suppurating appendicitis, or other septic state, long confining a patient under conditions which would be causative of tuberculosis at sea level, will not have a like result in Colorado.

Yet the fact remains that tuberculous infection, reaching an advanced stage of the disease, is so rare an occurrence in Colorado as to be remarkable. Here in the largest city in America located at such an altitude, during the twenty-seven years I have practiced medicine in Denver, the ratio of death from tuberculosis to all deaths, excluding those cases imported or contracted elsewhere, has been only from one-eighth of 1 per cent. up to less than 4 per cent. During this same period cities in the eastern States have had a three or eight imes greater ratio cities in the eastern States have had a three or eight times greater ratio tives they have sent away to the South and to the Rocky Mountain regions, which greatly lessened their consumptive mortality and increased ours.*

When one thinks, which I have seeni, of an ignorant third-stage consumptive from the East, fastening himself as a visitor upon a poor family of eight, including little children, living in three small rooms, and he expectorating his myriads of bacilli upon the rough unpainted floor, one wonders that there are not more cases of infection than there are, especially in a large city like Denver where there are so many overcrowded small houses. Looking up and investigating the cases of tuberculosis, probably originating in Colorado, which I have myself seen or heard of during the past year, I find that they are all explainable in accordance with what has been said above. Two cases reported by other physicians in country towns seemed to be due probably to other causes than known deficient ventilation.

---

* This Denver 4 per cent. mortality is, according to a report tabulated by Dr. William P. Munn, when Health Commissioner, and for the six years, 1893 to 1898 inclusive. Two-ninths of these cases, said to have been contracted in Colorado, were classified as *meningeal tuberculosis*. A remarkable ratio, and full of suggestion as to its cause.

One of these, an illegitimate young woman, age twenty-two, with inheritance to tuberculosis on mother's side, never strong, and had broncho-pneumonia at thirteen, pleurisy at seventeen, pneumonia at eighteen, followed by night sweats and hemorrhages a year or two later; undoubtedly tubercular, but now under treatment and doing fairly well.

Another case of a young man of twenty-two is doubtful only as to the origination of his tuberculosis in Colorado, as his lungs were said to be "weak" when he came to this State at age of twelve. Slept on ground floor in room twelve by fourteen feet; had la grippe about two years ago and never recovered entirely; was found to be tubercular in June, 1900.

My own cases of this class, four in number, are all doing well, especially when removed from the cramped, unventilated quarters in which they developed the disease.

1st. A young woman, age eighteen, born in Colorado, an undersized member of a family of seven, all of whom had "eczema," from doubtful, probably specific, inheritance on father's side; living in very cramped quarters near a mill ditch. The mother, a robust woman, says her daughter slept with her, for nine months previous to her illness, in bedroom eight by ten by nine feet in size. This defective, neurotic, undeveloped girl, now twenty years of age, was found by me to be tubercular in third stage, June, 1899, though she claimed she had never been sick in bed.

2d. An Italian woman, age twenty-nine, married nine years and has five children, youngest one year old, not weaned from the breast when this patient was first seen by me in August, 1900. She was the wife of a former patient of mine who had miners' consumption. Five months previously this woman had a "severe cold" from which she had never recovered. The possibility of infection is admitted; but she slept with her two children in a close room, dimensions nine by ten by eight feet, and was otherwise most unhygienic in the care of her person; in fact, had not taken a full bath for five months.

3. A poor sewing woman, age thirty-seven, undersized, spinster, lived in Colorado twenty-one years; always confined at home sewing. For three years has slept with her sister in a bedroom, size eleven by nine by nine feet, opening off from the kitchen. Had la grippe February, 1900, and in August the same year, cough and expectoration having continued since, we found bacilli in sputum.

4th. A young woman of twenty-seven, married six years, clerk in a Denver agency office for three years, where there were eight others, all working in three adjoining rooms; two of these clerks were expectorating consumptives, at times using the waste baskets instead of spittoons. During all these three years she slept at night, with her husband, in a room a consumptive had previously occupied, size about eight by ten by nine feet, and it was on the ground floor and had but one window. This room was located on the north side of a small house which was shut in between two others. The tuberculosis was laryngeal as well as pulmonary, the sputum yielding T. B. germs in large numbers. It may have been a case of infection, as there were plenty of chances, but the condition as to deficient ventilation was certainly contributory. To get her out of town Arizona was recommended, where at last accounts she was doing very well.

It is thus reasonable to conclude, I believe, that deficient ventilation is the keynote of the cause, as is outdoor living or perfect ventilation the keynote of the cure of tuberculosis.. It is mainly an acquired disease, since Dr. Schreiber tried many new born children with the tuberculin test and "during the first week of life they did not once react"; that is, only a dyscrasic tendency is transmitted from parents to child. How variously but certainly this individual susceptibility is magnified by our faulty bringing up and by our after life constitutes the history of the acquirement of tuberculosis.

It is not acquired during a life out in the open, else our cattle, grazing on the western plains, would show the existence of the disease as they do not now. That acquirement, as is generally conceded by medical men, comes (as it does with monkeys and other animals) through domestication with its too close confinement in unventilated rooms.

The best we can do, then, is to insist that the necessity of outdoor living must be appreciated, especially in Colorado, where the benefits of such a life are enhanced above what obtains in the lowlands; also let us insist that legislation take hold of this question of deficient ventilation, that this potent cause of this dyscrasic disease may be in a measure eliminated.

CLINICAL NOTES ON THE TREATMENT OF BACTERIAL DIARRHEA.

By DR. FRED. PIRNAT, Chicago, Ill.

Lecturer on Practice Illinois Medical College, Attending Surgeon St. Hedwig Hospital, Attending Physician St. Joseph Home.

Bacteriological researches during the past few years have clearly demonstrated that many of the affections of the gastro-intestinal tract are due to the agency of various pathogenic micro-organisms. In a lecture recently delivered by the celebrated bacteriologist, Professor Metchnikoff, on the microbian flora of the human body he states that the largest number of micro-organisms are found in the alimentary tract. According to his researches, thirty different species are to be found in the mouth, about thirty in the stomach, a considerable number in the small intestine, and about forty-five species in the large intestine. Of course, many of these organisms are not of morbific character, and are probably of direct benefit by elaborating certain materials which may aid in the digestion. It is also possible; and even probable, that certain microbes which under healthy conditions of the digestive tract are perfectly harmless may in the presence of digestive disorders assume a virulence which they otherwise do not manifest. A notable instance of this is the bacterium coli communis, to which so much significance is attributed at the present time in the causation of appendicitis and intestinal inflammations. This organism is the most numerous species of bacteria present in the intestinal canal, being particularly abundant in the cecum and the appendix vermiformis. Ordinarily, it produces no disturbance, but should there be a change in the intestinal mucous membrane it penetrates the membrane and causes inflammation, necrosis and pus formation, as observed especially in cases of appendicitis.

A very interesting observation has recently been made by Kohlbrugge (*Journal of the American Association,* June 1, 1901) that bacteria are particularly abundant in the gastro-intestinal tract during digestion, and that in a fasting condition they diminish greatly in number, so that the intestines may be almost sterile. This seems perfectly logical, since the growth of micro-organisms of all kinds is directly dependent upon the amount of nutritive medium.

These preliminary statements have been chiefly made with a view of emphasizing the vital importance of a careful discrimination in the diet in conditions of disease of the digestive organs. To prevent propagation of pathogenic organisms, the food must be selected with the special view that it will not furnish a favorable culture medium; in other words, we must approximate as closely as possible to a sterile diet in these cases.

By this, however, it is not intended to convey the idea that all that is necessary is to sterilize the food previous to its ingestion, as is so commonly done nowadays with milk. However sterile milk may be before it is taken into the stomach, if it enters an alimentary tract swarming with micro-organisms it will serve only as a medium for their growth. It is now well recognized that in many affections of the gastro-intestinal canal of bacterial origin, as well as in typhoid fever, milk is frequently a most undesirable food, no matter in what form it be administered. This is due in great part to the fact that when acted upon by certain microbes it gives off various ptomaines, the absorption of which has very deleterious consequences. The problem of alimentation in these conditions has been, therefore, a most perplexing one. We can, of course, by the administration of laxative or evacuants, or by the use of high irrigations in diseases of the lower bowel, diminish to a greater or lesser extent the number of bacterial colonies. As a matter of fact, the profuse intestinal evacuation may be considered as Nature's effort to rid itself of irritating material. But while evacuants have their proper place in the treatment, they are often contraindicated on account of their debilitating effect upon the already exhausted patient. Moreover, the physician is frequently not consulted until the patient has had a profuse diarrhea for some days. Under these circumstances, therefore, the chief aim of treatment is to sustain the strength of the patient until it is possible by appropriate remedies to restore the intestinal mucous membrane to a normal condition. This can be done only by a food of an albuminous nature, which will be so concentrated that it does not require to be given in large quantity, and which will also be absorbed so rapidly that it does not remain for any length of time in the intestinal canal, and especially one which is not greatly attacked by bacteria.

It is an established physiological fact that in the form of albumoses albumins are most readily absorbed and assimilated, since they do not require any further digestion, and hence do not tax the digestive functions. To obtain proteids in this form, however, requires a very complicated process, because of the formation of peptones, which are undesirable on account of their unpleasant taste and irritating effects upon the gastro-intestinal tract, if present in any considerable amount. In lacto-somatose, however, the albumoses exist in a practically pure state, with only a mere trace of peptones. The albumoses of which it consists are in firm chemical combination with a small amount of tannic acid. This is a decided advantage, since it has been shown that tannic acid inhibits the growth of organisms, and also renders inert the toxins which they elaborate.

If the above views on the question of feeding in intestinal troubles of bacterial origin be accepted, it would seem that lacto-somatose best conforms to the requirements of a perfectly sterile food, since the albumins of which it is composed are present in a state which permits of their rapid absorption, and, moreover, do not form a favorable culture for bacteria owing to the antiseptic action of the contained tannic acid.

The cases reported below will serve to illustrate my mode of treating intestinal disorders of bacterial character:

Case 1. Emma R., aged 18 months, since birth has enjoyed exceptionally good health, having been bottle-fed since the age of 12 months. The child became peevish and fretful, so that the mother was obliged to carry her during the day and walk her most of the night. After four days marked sleeplessness and restlessness ensued; the appetite was lost, and the patient had three or four passages a day. After one week diarrhea appeared, the number of stools increasing to twelve a day. They were then greenish-yellow in color, containing curds of milk. The reaction was very acid, and the odor extremely offensive, mucus being present in abundance. The tongue was coated white; temperature, 100°; pulse, 130; some anemia. There had been a progressive loss of flesh noticeable in ten days from the time she became sick; the muscles being soft and flabby. June 12 the child was brought to me in this condition. I immediately placed her on a 1-10 grain doses of calomel, and ordered no food to be given for forty-eight hours, but instead lacto-somatose, two ounces, to be divided into 40 powders, one powder to be dissolved in one-half a glass of warm water (sterile), and the patient allowed to drink as much as she desired every two or three hours. July 13, the child was brought to my office but little improved; temperature, 100°; pulse, 120; diarrheal discharges still of the same offensive character, with an increased amount of mucus present. I increased the dose of calomel to 1-8 grain, and added podophyllin 1-24 grain, bismuth subnit. 3 grains, to be given every two hours. June 14, slight improvement; temperature, 100°; pulse, 120; ten stools since yesterday morning of less offensive character, but mucus still in abundance. Emaciation more marked; weakness becoming pronounced, so that the child slept the greater part of the day and night. June 16, condition not much more favorable. I omitted the calomel and bismuth powders, and gave pulv. ipecac and opii 2 grains, tannopine 10 grains, every three hours. Four ounces of barley water were allowed twice a day. June 18, improvement was evident; temperature, 99°; pulse, 100; stools fewer in number and of more healthy appearance; appetite returning and the child more jovial.

The last-named powders were continued four times a day, and lacto-somatose in 30-grain doses, six times a day; milk was allowed. June 21, the child had two to three passages a day; temperature normal; pulse, 118; weakness and emaciation still pronounced. A tonic of strychnia with iron and the hypophosphites was prescribed, and lacto-somatose continued as before. The astringent powders were discontinued, and beef-tea was ordered to be given occasionally. June 25, the child was steadily gaining in weight and strength. Lacto-somatose and the tonics were continued for one week.

Case 2. June 26, Willie O., ten days old, developed a terrific diarrhea. The history of this case is somewhat unusual, and therefore I relate it in detail. The grandmother of this child had given birth to a babe three months previous, and was present at her daughter's confinement. It was a hot night and the baby cried continually. The good-natured grandmother put the infant, only three hours old to her breast. How much it nursed no one knows. After being quiet for a time it renewed its cries, and was dosed with sweetened chamomile tea. The child would not take the breast, being partial to sweetened water. Contrary to my admonitions they fed it on cow's milk diluted half with water when it was three days old. On the fifth day the child had convulsions. I gave it chloroform to check them and having learned of the above facts, as well as that the child's bowels had moved but three times since birth, promptly instituted treatment. I administered one-half teaspoonful of castor oil, scooped out the hardened feces from the rectum, and gave high rectal injections of cold water. June 27, the bowels began to move freely, and the child rested well all day. June 28, the child received cow's milk and catnip tea contrary to my orders, and vomited about one hour after it had been fed. At 4 A. M. on June 29, the vomiting became continuous, and he had five soft passages, mostly curdled milk. I gave milk of magnesia in half teaspoonful doses every hour until the vomiting ceased, and then began with calomel 1-48 grain, ipecac 1-48 grain, bismuth subnitrate 1 grain, every two hours. I ordered that no food be given with the exception of lacto-somatose in ten grain doses, every two hours as needed. For five days the diarrhœa persisted to a slight degree, and the child became thin and weak. July 2, I allowed the breast in conjunction with the lacto-somatose powders. From June 29 until July 2 the child had been fed exclusively on lacto-somatose, and took as much as 80 grains in a day and a night. July 9, I discharged the case, prescribing syrup ferri iodide 2 drachms, syrup hypophosphites, q. s. 4 ounces, one teaspoonful four times a day for two days, then twice a day.

Case 3. Byron R., aged 2 years and 3 months, became suddenly ill after partaking of some unripe fruit. He vomited continuously until the contents of his stomach had been completely evacuated; then nausea supervened; the skin was hot, dry; the temperature, 103°; pulse, 125. Diarrhea set in in a few hours, the stools being dark-green and mushy, and a large amount of gas passing with each evacuation. I gave calomel 1-12 grain, podophyllin 1-24 grain, ipecac 1-24 grain and Dover's powder ½ grain, every hour until the stools changed, and lacto-somatose 40 grains, every three hours. The symptoms became more aggravated during the next few days, but he was kept on the same treatment, and made a good recovery in twelve days, and after one month had regained his former health.

Case 4. Irene N., aged 16 months, in good health on retiring, became suddenly ill at midnight. She was vomiting, had colicky pains in the abdomen and slight diarrhea. Paregoric was given and the symptoms abated, but still the child was very restless, and cried most of the night and the following day. When called, the child had a temperature of 103°; pulse, 110; abdomen slightly distended with gas. The diarrheal discharges numbered ten that day. Everything that was offered the child was refused. I gave calomel 1-10 grain, podophyllin 1-30 grain, pulv. ipecac et opii, 1 grain, every two hours in alternation with salol 1 grain, quinine sulph. ½ grain, every two hours. No food was allowed except lacto-somatose 30 grains, every three hours. May 12, the temperature was 102.4°; pulse, 100; stools more frequent, thin and offensive; prostration becoming marked; tympanites more decided and flatus passed in abundance with each stool; urine scanty and high colored; skin dry and hot. Tepid baths were ordered every one or two hours to reduce the temperature, and ice-bags placed on the head. Small doses of brandy in water were administered, and the calomel powders, together with guaiacol carbonate, ½ grain to each dose, continued. For the tympanites the following was prescribed: Ess. neth. pip. ½ drachm, spts. etheris comp. 3 drachms, elix. lacto-peptin q. s. 3 ounces; one teaspoonful every three hours until better. May 13, the patient was about the same, the diarrheal evacuations being very frequent but small in amount; blood was passed several times. I flushed the colon with luke-warm water and gave an enema of starch and opium. May 15, the general condition had improved markedly, and convalescence began. The diarrhea persisted for five days, and the stools gradually assumed a healthier appearance and lost their offensiveness. Lacto-somatose was continued in 30-grain doses four times a day, and milk and beef-tea added to the diet. A tonic of fluid ext. cocoa leaves 1 ounce, syrup of hypophosphites of calcium and sodium q. s. 6 ounces, one teaspoonful four times a day, was given. The child improved steadily, being kept out of doors for several weeks.

Case 5. Margaret K., aged 12 months, bottle-fed, had diarrhea for a week preceding the present attack. Blackberry brandy and paregoric were used to check it, but as soon as the effect of the remedy had passed off the diarrhea returned. The mother took the child to a dispensary clinic, where she received a white mixture, probably bismuth, chalk and opium. She was ordered to feed the child on a certain cereal food. The patient was somewhat relieved after this treatment. July 1, twelve days after the appearance of the diarrhea, the child began to vomit the food every time it was fed, and simultaneously had a discharge from the bowels. The vomitus was sour, containing the slimy food substance; the stools were copious and mostly serous. The child was very thin and anemic, and there were signs of profound exhaustion. The fontanelle was depressed, the eyes dark and sunken, the mouth drawn, and there was an anxious expression on the countenance; temperature, 102°; pulse, very rapid, 130; tongue dry, red at the edges and pointed. I immediately gave a high rectal injection of four quarts of warm salt solution, allowing some to be retained. Ice was placed on the head and tepid baths given every two hours. The food was discontinued, and lacto-somatose powders given in 30-grain doses every two hours. I also administered morphine sulphate 1-20 grain, atropia sulph. 1-800 grain, per rectum, three times that day. July 2, her condition was extremely grave; all the symptoms persisted in about the same intensity. Rectal suppositories of the above ingredients were now given every three hours, and two rectal injections of tannic acid and witch-hazel. Brandy and water was also administered freely. Lacto-somatose was continued as before. July 5, the diarrhea markedly improved, the child having but five stools; temperature, 100°; pulse very feeble, and prostration extreme. Lacto-somatose was increased to 25 grains every two hours, and small amounts of milk, diluted with carbonated water, were administered alternately. Fl. ext. of cocoa 4 drachms, syr. hypophosphites, q. s. 4 ounces, one teaspoonful four times a day. Under this treatment the child recovered, being hale and hearty at the end of two months.

Case 6. Israel O., aged 8 months, living in the Ghetto, was brought to my office with a history of diarrhea and vomiting for three days preceding. The baby refused the breast and kept awake most of the time crying. The abdomen was distended with gas, and seemed painful. Temperature, 100°; pulse, rapid; tongue coated white; rapid emaciation. I gave 1-24 grain calomel every hour and lacto-somatose 15 grains, every two hours. No breast milk was allowed for forty-eight hours. June 10, the child still had severe diarrhea, but the vomiting had stopped, and the mother wished to nurse the child. This I forbade, and ordered the lacto-somatose continued in 30-grain doses every one or two, or three hours as needed, because it agreed so well with the child's digestion. Bismuth and opium mixture was also ordered for the diarrhea. June 12, the child began feeding at the breast, and did well. Convalescence continued during the course of this treatment, and on June 18 the case was dismissed, with a tonic of cod-liver oil.

Case 7. Emma S., aged 2 years, history of syphilis in both parents. According to their statements the child had been puny and was subject to colic and slight diarrhea. June 3, I was called, finding the child in general convulsions; temperature, 102°; pulse, rapid and feeble; no other symptoms. Elix. naphthalini compos. for the fever, and syr. ferri iodid. were administered. June 7, another attack of convulsions occurred preceded by vomiting. Diarrhea developed, the patient having had six copious discharges that day. I gave small doses of calomel and ipecac in alternation with small quantities of Fowler's solution, to stop the vomiting, and allowed no food except 30 grains of lacto-somatose every two hours. June 8, condition the same. On account of the diarrhea I ordered colonic flushings every four hours with plain water, and tepid baths every two or three hours. June 9, the child looked like a corpse; extreme pallor of the face, pinched expression and sunken eyes; abdomen soft and sunken; eyes half open; pulse irregular and feeble; temperature normal. She had eight involuntary discharges during the day, more liquid than before. I gave salol 1 grain, every two hours, strychnine and brandy every two hours, and lacto-somatose 40 grains every two hours, the patient being kept absolutely quiet in a darkened room. She was very stubborn, and had to be forced to take the lacto-somatose. June 10, no improvement whatever; treatment continued. June 11, condition about the same. I changed the intestinal antiseptic to guaiacol 1 grain; menthol, thymol and eucalyptol, aa 1-12 grain, every two hours. At 8 P. M. improvement began; the pulse was better; the temperature, 99°; the child brighter; the stools less frequent; tympanites disappearing. The same treatment was continued. Lacto-somatose 40 grains to which was added half a teaspoonful of beef-tea, was administered every three hours. From this the patient steadily improved. Milk was allowed on June 12, and a tonic given four times a day. The diarrhea had ceased. Convalescence was fully established at the expiration of the month, and during this period lacto-somatose was given in 40-grain doses, four to six times a day.

Case 8. Ella W., aged 5 months, breast-fed, became suddenly ill with vomiting and diarrhea. She refused the breast most of the time for two days before being placed under treatment. The stools were very acid, yellow and thin. The child had considerable adipose tissue. Calomel and podophyllin were given every two hours. Lacto-somatise 10 grains, every two hours, was administered, the breast to be given four times a day if accepted. July 18, the mother came to my office stating that the child refused the breast, but took the powders. I, therefore, increased the dose to 20 grains, every three hours, or oftener if desired. July 19, the child has improved, but the diarrhea continued. I gave a prescription of calomel, zinc, sulpho-carbolate, and papain, one powder every three hours till the diarrhea ceases, then four times a day. Lacto-somatose was continued as before. July 20, the diarrhea had ceased, and the child took the breast freely, and felt much better. The same treatment was continued until July 27, when the case was dismissed, with a prescription for syr. ferri iod. 4 drachms, syr. hypophosphites, q. s. 3 ounces, one teaspoonful three times a day.

Case 9. Eva B., aged 2 years and 3 months, ate plums and watermelons, besides drinking some beer. That night she became very restless and was given a dose of castor oil. This she immediately vomited and continued vomiting until 4 A. M., when nausea kept up the distress. July 4, I gave the child calomel 1-8 grain, podophyllin 1-24 grain, pancreatin 1 grain, sacch. lact. q. s., one powder every two hours; and milk of magnesia, one teaspoonful every two hours, in alternation. July 3, she developed diarrhea; much indigested food mixed with melon seeds and plum skins was passed. The stools were very offensive and dark brown in color. Calomel powders were continued and rectal enemas of water given. Lacto-somatose 30 grains, every two hours, and brandy and seltzer water ad lib., were also given. On July 7, the child felt considerably better, and received calomel, camphor, capsicum, aa 1-10 grain, morphine sulph. 1-60 grain, ipecac 1-30 grain, guaiacol 1-12 grain, every two hours till the diarrhea ceased. Beef-tea was added to the diet. Lacto-somatose was increased to 40 grains every three hours. A gradual increase in the diet was brought about, and on July 14, I dismissed the case with tonic.

Case 10. Edward S., 7 months old, scrofulous, had been subject to constipation since birth. July 22, he became feverish and fretful during the night. July 23, he was given the breast, which he refused most of the time. When he did nurse, it was with less vigor than before. At 10 A. M. he began vomiting and purging. At 10.30 I arrived and gave an emetic of ipecac, and followed this with milk of magnesia, every two hours. I ordered that absolutely nothing be given for eight hours but lacto-somatose, 5 grains to one-half glass of water, every hour or two. The stools were of a pale green color and acid in reaction. At 6 P. M. I found conditions almost as serious. The child was becoming weak from the continuous retching and the efforts to expel the mucus from the stomach. The relaxation of the sphincter ani allowed the feces to escape with every effort at vomiting. Temperature subnormal; pulse very weak and rapid. I gave rectal injections of weak potass. permanganate solution, followed by copious injections of normal salt solution. Following this suppositories of ¼-grain pulv. opii were given, and the child rubbed with warm whisky and oil every four hours. Lacto-somatose, 10 grains, in solution, was taken cold ad libitum. July 24, at 8 A. M. the conditions were the same as on the previous day. The patient had slept most of the morning. He retained the lacto-somatose, of which he took five doses. Temperature, 100°; pulse, 160; feeble, abdomen slightly distended; urine scanty and high colored; prostration extreme; face pale and thin, with a pinched expression; eyes glassy, half open; fontanelle depressed. I gave another copious injection of salt solution and suppositories of pulv. opii 1-8 grain, per rectum, and ordered hot whisky to be rubbed into the body and lacto-somatose continued ad libitum as before. No breast feeding. July 25, condition improved and appetite returning. I allowed the breast in addition to lacto-somatose, and for the diarrhea gave bismuth and opium mixture per os. July 27, the stools were small and thin, mostly serous, alkaline in reaction; temperature, 100°; pulse, 140. Strychnia sulph. ¼ grain, sol. potass. arsenit. ½ drachm, syr. hypophosphites q. s. four ounces, one teaspoonful every three hours, and lacto-somatose 15 grains, six times a day, were administered. The patient was allowed to feed at the breast as often as necessary. The child is emaciated, but I think it will regain its former state under this course of treatment.

Case 11. Fred M., aged 3 years, developed slight diarrhea. July 4 he was indisposed, had mild fever and abdominal pain. He took fig syrup without benefit. The diarrhea continued for a few days, and became worse from day to day. July 8, I found the boy very weak, temperature, 103°; pulse, 120; he was nauseated, having twelve thin yellow discharges a day. He refused everything, even water. He had been in a stupid condition for ten hours. I gave calomel, podophyllin, hemopepsin, every two hours, and lacto-somatose 30 grains, every two or three hours in half a glassful of warm water. He was rubbed with whisky and oil three times a day. July 9, abdomen distended; temperature, 103°; pulse, 130; tongue coated white, red at the edges and tip; very restless and unable to raise his head from the pillow. Diarrhea still severe and offensive; sores on lips. The same plan of treatment was continued as before, to which was added bismuth mixture every three hours. I increased the dose of the powders of calomel, podophyllin and hemopepsin. July 10, very slight improvement. Treatment continued; ice to the head; turpentine stupes to relieve the gaseous distention of the abdomen. July 11, tympanites markedly less; temperature, 100°; pulse, 120; slept better, tongue cleaner, diarrheal discharges decreased to eight and less offensive, green in color. The mother had given him more lacto-somatose than I had ordered, as he seemed to relish it. Calomel powders omitted, but the other treatment continued as before. July 12, improvement very evident; tympanites gone; temperature, 99°; had three discharges of normal color and consistency; appetite and thirst ravenous. I added top milk to the diet, and increased lacto-somatose to 40 grains six times a day or oftener if needed. A tonic of strychn. sulph. 1-100 grain, liqu. potass. arsenit. gtt. ½, syr. hypophosphites q. s. 1 drachm, to each dose, was given four times a day. Whisky and stupes were discontinued. July 16, the case was dismissed, with instructions to continue the lacto-somatose and tonic for two weeks hence.

To obtain the most satisfactory results in treating bacterial diarrheas, it is absolutely necessary to give the blandest diet in small quantities often repeated. This demand has been supplied by lacto-somatose, since it contains the essential nourishment in the highest concentration. Never has a stomach refused this food, even though all else had been regurgitated. I have just discharged a case of terrific diarrhea in a man 42 years old who after three days of suffering was so debilitated that he could hardly move. He vomited continuously for two days. Besides other medicinal treatment I sustained his physical condition for three days on lacto-somatose 40 grains, every hour or two, and Rhine wine and seltzer water for the thirst. Though considerably emaciated he has regained his strength.

TREATMENT OF PNEUMONIA.

A little more than a year ago, a very good paper on the treatment of pneumonia was read before the German Medical Congress by Professor Pel of Amsterdam. At the conclusion of it, he said that, inasmuch as his arguments were based on the observation of more than twelve hundred cases of pneumonia, they might be of some clinical value, but for the recommendation of any single method of treatment for pneumonia a successful series of many thousand cases would be required. Admitting the truth of this statement, I should not think of publishing a few cases of pneumonia in which good results had been obtained by giving creosotal, if they were the first which had been so treated; but there are a number of physicians here and abroad who say they have seen good results from it in a comparatively large number of cases, hence I feel no hesitation in giving the report of my own cases, because they are confirmative of those reported by others.

In a paper on the treatment of pneumonia read last winter before the New York Post-Graduate Clinical Society, and published in the *Post-Graduate Medical Journal* for June, 1901, I said that, while waiting for a reliable antipneumonic serum, which it is my belief will come soon, we can do no better than to treat and nurse the pneumonic patient through his illness according to well-established rules. A week after reading that paper, I came across an article by Dr. I. L. Van Zandt, published in the *Medical Record* of March 30, 1901, under the title "A Résumé on Creosote in Pneumonia." There have been other observations on this subject in the medical journals of this country, but Van Zandt's is the only one I have read. The French have been the first, I believe, to employ creosotal in pneumonia and broncho-pneumonia. Dr. Carsouté reports a series of successful cases before the Pediatric Congress held in Marseilles in 1898; Dr. A. H. Smith, in the *New*

York Medical News, 1899, mentions it; so does Dr. J. A. Gracy in the *Charlotte Medical Journal*, 1899; Dr. Charles E. Stokes, in the *Brooklyn Medical Journal*, in the same year, I believe, also recommended it in lobar pneumonia. Dr. J. W. Frieser, of Vienna, Dr. Meitner *Medico-chir. Centralblatt*, June 22, 1900; Dr. M. Everson, *Aerztliche Centralblatt*, July 7, 1900, have also seen invariably good results following the administration of creosotal in pneumonia.

Upon the basis of all these positive reports, I now felt encouraged to try creosotal as a remedy for pneumonia, and I have done so in three private and six hospital cases which were under my care at the Post-Graduate Hospital during my service in April and May. In the care and treatment of the hospital cases, I have been most ably assisted by Dr. Adams of the house staff, who was untiring in the care and treatment of the cases, as well as in the keeping of correct clinical records of the same.

Cases of pneumonia in the wards of the Post-Graduate Hospital during April and May:

I.—Daniel M., aged forty-seven, mechanic, single, American. Had measles and scarlet fever in childhood; gonorrhea and syphilis between eighteen and twenty-two. He is subject to colds and coughs during the winter months, and three days before his admission he had a severe chill at night, followed by pain in the left side of the chest, and a short, dry cough.

On admission, March 28, lobar pneumonia of the left side was fully developed; temperature 102.5°, pulse 112, respiration 40. Patient was restless and delirious at times, and continued that way until March 31, when treatment with carbonate of creosote was begun. Believing that it would be opportune to give the drug in gelatine capsules which could be readily taken, and would dissolve in passing along the intestinal tract, such capsules were put up after this formula:

℞ Carbonate of creosote.. ½ oz.
Sapon. medicat.. 1 dr.
M. F. capsulæ No. 60. Two to be taken every three hours, ten to twelve daily.

April 1, patient has had 60 gr. of the carbonate of creosote. His temperature was 98.6°, pulse 96, respiration 22; he is quiet and coughs but little; consolidation of left lower lobe posteriorly and at the side from the fourth rib down; a few crepitant râles can be heard. Medication was continued, also 3 gr. of Dover's powder ordered to be given at 10 P. M., if the patient were restless; his bowels were kept moving by sufficient doses of sulphate of magnesia.

The creosote was continued at this rate until April 10, when he had taken one ounce of it. Temperature, pulse, and respiration had remained normal right along, his appetite and general condition were good; but, though the soft râles increased from day to day, resolution was not complete until April 14, when the patient was convalescent, put on a mild tonic, and discharged as cured April 22.

II.—Emily E., aged forty, widow, housewife, American, has had measles, scarlet fever, and typhoid fever, and rheumatism between her fifth and thirty-fifth year; badly nourished and anemic-looking person. Three weeks before admission, she had an attack of catarrhal influenza, and two days before, sharp pain in left side, increasing sense of prostration.

Admitted March 27. She had much cough with thin mucous expectoration, some fever, which kept on increasing slightly until March 31, when the temperature reached 101.5°, pulse 90, respiration 28, and a diagnosis of pneumonia of the left lower lobe posteriorly, and part of the upper lobe, could be readily made. April 1, creosotal treatment was begun and continued steadily until April 10, when 10 dr. of it had been administered. After the first twenty-four hours, the temperature never rose above 99°; respiration fell to 20; the pulse was weak, however, though regular, and indicated small doses of alcohol, which were ordered. During these ten days the area of consolidation had remained the same.

April 12, of the elixir of ferrum, quinine, and strychnine a teaspoonful was ordered four times a day. She was generously nourished, her bowels kept regular, and under rather free muco-purulent expectoration the pneumonia got well by lysis about the 20th, and the patient was discharged cured April 27.

III.—Jennie G., aged twenty-one, single, American, servant, had measles three years ago, which left a bronchial catarrh, making frequent exacerbations. A year ago, slight hemoptysis occurred, not followed by fever or cough, and a week before admission she had pleuritic pain in the right side with some fever. When admitted April 17, she was found to have a pleuritic effusion in the right lower half of the thorax, existing probably for some time, but not interfering to any great extent with respiration and circulation; but there were also signs of congestion around a presumably old quiescent lesion in the right upper lobe; patient's temperature ranged from 100° to 102°; general condition fairly good. There being no immediate indication for aspirating the pleuritic fluid, we treated first the acute congestion in the right upper lobe by giving her creosotal at the rate of 50 gr. a day for one week, with the same result of reducing temperature to normal within two days; it remained so until May 1, when about six ounces of clear yellow serum were aspirated and the patient ordered to take solid food, very little fluid of any kind, to practice respiratory gymnastics by slow and forcible expirations through a short, hard rubber tube of one-sixteenth of an inch bore, followed by deep and rushing inspirations. These special respiratory movements she was instructed to do a dozen times t. i. d., with the result that the compressed parts of lower lobes re-expanded rapidly, and marked general improvement followed. On May 11, respiration was almost as good and full on the right as on the left side. Right posterior apex showed slightly harsh expiratory murmur, indicating the old lesions mentioned above. Temperature, pulse, and respiration normal. Patient being somewhat anemic, she was ordered to take Blaud's pills, and discharged cured May 15.

For many years I have been in the habit of ordering the above-described respiratory exercises for re-expanding the lungs after aspiration of pleuritic exudates; also in cases of bronchial catarrh with and without bronchiectasis, in fibrous and indurated processes of the lungs and the like, and have found this simple and handy procedure quite as efficient for the purpose as the use of more or less complicated apparatus.

IV.—Michael D., aged forty-seven, nurse, single, American; patient had gonorrhea at eighteen, neither syphilis nor rheumatism. He used liquor moderately, worked rather steadily, and considered himself a healthy man up to two weeks before admission; at that time he was exposed for a period to cold and wet weather, and was taken ill rather suddenly with pain in the right side and back and high fever. Does not remember what occurred from that time until he was admitted May 2, with temperature 101°, pulse 128, respiration 22. The second mitral sound was found weak, the second pulmonary accentuated. The right lung consolidated posteriorly up to the crest of the scapula; a few dry crepitant râles here and there. There was slight icterus present, but the lower margin of the liver was not found to extend below the free border of the ribs. There was neither ascites nor anasarca; no vomiting. The patient was unusually quiet, almost apathetic. Temperature rose next day to 101.5°, but after two days' exhibition of carbonate of creosote at the rate of 60 gr. per diem it became normal.

May 4, pulse about 100, but weak. May 5, resolution began to set in, but the patient's general condition did not improve in measure. May 10, pulse much weaker, and strychnine, camphor, and caffeine were administered hypodermically; stimulants were also given. May 11, he had rallied somewhat and felt better, but on May 12 the heart failed to respond any further, pulse became imperceptible, and death ensued. The patient was certainly getting better of his pneumonia, but he succumbed to degenerative myocarditis, which we believed to be present after the very first examination of the patient. We were not allowed to make an autopsy.

V.—Camille M., aged thirty-four, actress, married, English; has never been pregnant, menstruation regular, but always painful and followed by a variety of neurasthenic symptoms; three months before admission oöphorectomy was performed upon her. On April 4 she had a chill, followed by fever and pain in the right half of thorax, and on admission April 6 we found pleuro-pneumonia of moderate extent on the right side with a temperature of 101° and pulse 89, respiration 24. Carbonate of creosote, as in the other cases, was administered, 50 to 60 gr. a day. Temperature fell to 99 after the first day of administration and never rose again. For the distressing cough heroin gr. 1-12 had to be given two or three times a day, and cold compresses were applied on the right side to soothe the pleuritic pain.

April 10, all symptoms of pulmonary congestion had disappeared. April 12, she was put on mixtura ferri et ammon. acet. 2 dr. t. i. d. for tonic purposes and discharged in good condition April 15.

VI.—Arthur H. H., aged twenty-eight, single, English, salesman; was admitted March 16, when he either had or soon afterward developed pneumonia, concerning lower lobe of left side; he was treated symptomatically and remained in statu quo. April 1, hepatization was still well marked, fever present. The creosote treatment was begun April 2, and all general and local symptoms had changed for the better on April 3, and remained so until resolution was accomplished April 12; patient made a good and complete recovery and was discharged cured April 20.

Private cases.—I.—Fred W., aged twenty-four, clerk, single, American; a typical case of acute pneumonia with pain, fever, quick respiration twelve hours after initial chill; there were also rust-colored sputa toward the end of the first day, when I saw him; this case reacted as some of those described by Dr. Van Zandt, that is to say, the pneumonic process immediately yielded to creosote after twenty-four hours, and the patient was practically convalescent on the fourth day.

II.—Charlotte M., aged twelve years. Patient had lobular pneumonia caused by influenza; had been sick with it for two weeks, no change for the better. The reaction to creosote in this case was just as favorable with regard to fever and other symptoms as I have seen it in cases of lobar pneumonia. She took 10 gr. four times daily for eight days, and the temperature rising no more after that, she was put on small doses of strychnine and an expectorant mixture, given nourishing food, and her lungs cleared up gradually under free muco-purulent expectoration.

III.—Sarah S., aged thirty-two, married, childless, housewife; sick with lobar pneumonia concerning entire upper lobe for three days, when I saw her; consolidation well marked; she was immediately put on carbonate of creosote 60 gr. per diem with the same good general result as in all other cases; resolution began in the second week and was complete about the tenth day of illness.

Epicrisis; by the title of this paper is indicated that I mean to show that the carbonate of creosote exercises a remarkably beneficial and uniform influence upon the pneumonic patient. Is the action of this drug such as would justify us in pronouncing it curative? Is it really a remedy for pneumonia? In attending a case of pneumonia our present working theory is about this: the illness of the patient is caused by specific toxins formed through the action of certain pathogenic germs, and that his recovery is dependent upon the speedy production of serum antitoxins, which must be sufficient in quantity and quality to overcome the deleterious action of the toxic substances circulating in the blood. In the majority of cases the system is adequate to the demand, but in a considerable number, at least twenty-five per cent., it is not, and the patient succumbs. When a typical case of pneumonia ends by crisis, what is generally disclosed by the physical examination made the day after? The patient rests quietly, breathes easily, pulse and temperature are normal or subnormal; the affected lung, however, is found to be in the same state of hepatization as the day before, and the work of resolution begins and proceeds with more or less celerity. Very much the same thing occurs after the administration of creosotal, as we have seen in all the cases cited, and in many more reported by other observers; about 1 dr. of the drug having been taken, the temperature goes down to normal, and the patient feels much better generally. If the drug is now discontinued, the temperature, etc., will go up again; we resume it and continue at the rate of 50 to 60 gr. per day for three, four, five, or six days, and then the temperature will go down and stay down, and the affected lung will begin to clear up.

It must be conceded, I believe, that neither to the antipyretic nor bactericidal qualities of creosote is to be accorded this remarkable and beneficial influence upon pneumonia, a fact which so far as my experience goes, is never accompanied by any symptoms of depression or disturbance of the gastro-intestinal tract. It is reasonable to say that its action must be antidotal to the pneumonic toxins. None of my cases received any other remedy while the illness lasted, except a small dose of Dover's powder for controlling restlessness. All of the hospital cases were more or less advanced when admitted, except one. None were promising so far as the patient's constitution and general antecedents were concerned. Indeed, both Dr. Adams and myself thought that, as cases go, their chances of recovery were by no means good. Yet they all recovered, with the exception of case IV, who, after being well from the pneumonia as such, succumbed to the deleterious influences of cardiac and probably also hepatic disease, which, I believe, antedated the pulmonary affection. No sooner were the patients under the influence of creosotal than all further anxiety about them appeared to be unnecessary. We visited and examined them twice daily, saw to it that our directions as to nursing and feeding and the exact dosing of creosotal were properly carried out, and had the satisfaction of seeing the patients through the illness without resorting to the usual array of hypodermatic remedies.

It may be urged that, pneumonia being a self-limited disease, even bad cases will recover; so they do, as we all know; but then good and uncomplicated cases die in spite of the best care and the so-called symptomatic treatment because the system does not furnish a sufficiency of serum antitoxins to end the pneumonic process. Unfortunately, we are not in a position to tell in any case of pneumonia whether Nature will be able to do the one thing needful and cure the patient; we must go on, therefore, trying to find a remedy on which we can rely in helping Nature's efforts. These cases and many others have shown, I believe, that creosotal is such a remedy, working in a very similar way to the antitoxins furnished by the system. I should, of course, be delighted to furnish many more positive observations than I have done here, but my term of service began late in the winter, and in private practice we are not apt to see much of pneumonia after April; others, however, have seen and recorded equally good results before me, and being quite in accord with them, I am anxious to bring these clinical records to the knowledge of the profession, hoping that the remedy may be given a fair trial by many during the coming winter, and that the results obtained may be as favorable as my own.

25 West Forty-sixth street.

BETA-EUCAINE AS AN ANESTHETIC.

By JOHN MOIR, L.R.C.P. Ed. and L.R.C.S. Ed.

Beta-eucaine has been somewhat recently introduced by E. Schering of Berlin in place of alpha-eucaine, which in practice was found to be likely to cause a considerable amount of irritation and consequent discomfort; it is also less toxic in its action and quite equal in anesthetic properties to either cocaine or alpha-eucaine. It is now therefore recommended that beta-eucaine only should be used in eye cases, dentistry and in the surgical treatment of the genito-urinary tract.

It has been said that eucaine possesses no advantages as an anesthetic over cocaine in cases where intra-spinal injection is required, but the elaborate table published in THE THERAPIST in May of the present year, with its minute details, carefully tabulated cases, and the explanatory monograph accompanying, proves absolutely that this is not so. Further researches also from other sources published in THE THERAPIST, June 15, 1901, confirm and strengthen this fact, and there cannot be a shadow of a doubt in the mind of any candid observer that as an anesthetic for injection into the spinal cord, in all cases requiring such treatment, beta-eucaine possesses undoubted advantages over cocaine, and should always have the preference, being less toxic and less irritating whilst, at the same time, it is equally effective in producing anesthesia. In the cases of patients who have also been under the influence of chloroform, they have in many instances expressed their preference for beta-eucaine injection, on account of its less unpleasant after-effects.

Mr. F. C. Wallis, M.B., F.R.C.S., Assistant-Surgeon to Charing Cross Hospital and Surgeon to the Metropolitan Hospital (*St. Bartholomew's Hospital Journal.* August, 1897), states that his experience of its effect, when used hypodermically by him very frequently at St. Mark's Hospital, and also to a less extent at Charing Cross Hospital, is very satisfactory; he lays particular stress upon the following points: (1) The strength of the solution (4 per cent.). (2) The preparation of the solution and duration of its efficacy; it should always be sterilized by boiling, and will be effective for a week. (3) The amount injected, usually 1 to 1½ drams up to 3½ to 4 drams, may be injected subcutaneously wtih benefit and perfect safety. (4) The method of injection. The syringe should be one with the needle to screw on to the nozzle, to which a washer is attached, and thoroughly sterilized before using; at the same time no other anesthetic, such as morphine or cocaine, should be used in it. It should be reserved exclusively for the beta-eucaine 4 per cent. solution. With these precautions—thorough sterilization of the eucaine by boiling, a properly aseptic sterilized syringe, with a nozzle screw, and the syringe used with no other anesthetic—blood poisoning or other inflammatory symptoms, or subsequent bad consequences cannot arise. (5) The extent of operation possible. In a case of umbilical hernia, with suppurating sac, the operation lasted over thirty-five minutes, and the closure of the colotomy wound took fifty-nine minutes; in neither case was there any after-vomiting, so that the range as measured by these and other cases is undoubtedly large. In the last case also six drams of the 4 per cent. solution were used without any kind of toxic effect whatever. The effects of the first lot of eucaine lasted fifty-four minutes, and the last amount was used for putting the sutures in the skin. (6) After-effects, none. Eucaine is cheaper than cocaine, safer, quite as good an anesthetic, and has no cumulative effects, nor has it yet been known to cause such intolerable craving for it as cocaine and morphine, with insomnia, nervous irritability and want of will-power, in many cases making life an intolerable burden to the patient and his friends, and his last state worse than his first It is 3.75 times less toxic than cocaine, and has not the dangers or after-results so frequently induced by repeated morphine injections. The subsequent terrible depression after these others has not been observed in the administration of beta-eucaine injections, and therefore, of course, not in the milder forms of its application as drops or topical solution applied to a hollow tooth or aching nerve, earache, or inflammations of the eye. It is a safe and reliable anesthetic. In the words of G. W. Spencer, M.D., Philadelphia, Demonstrator of Surgery, Jefferson Medical College (*University Medical Magazine*, November, 1896): "Eucaine is a valuable addition to our resources. It is rapid in action, safe, produces positive and prolonged anesthesia, causes no serious after-effects, and can be rendered aseptic by boiling. It is the best local anesthetic before the profession." This being the case, particularly in its having no serious after-effects, it cannot produce any moral perversion of the intellect, amounting in some cases to genuine insanity, such as is frequently induced by the use of morphine and cocaine. I have used beta-eucaine in a considerable number of cases for affections of the eye, ear, mouth, nose and throat, with satisfactory results in every case, relief of pain, with no after-effects and no return of the symptoms for which it was prescribed. Professor Reclus, in the Laennec Hospital, Paris, made extensive experiments with the drug in 1898, with the result that he considers beta-eucaine to be a good local anesthetic, less toxic than cocaine, and that none of the difficulties that sometimes follow the use of cocaine occur. The late Dr. Matthew Charteris, Professor of Materia Medica and Therapeutics, University of Glasgow, read a paper on this subject before the Royal Society of Edinburgh, confirming those experiences, as well as those of Berger and Vinci.

In the *British Medical Journal*, January 16, 1897, W. J. Horne, M.B., MR.C.P. Lond., and Macleod Yearsley F.R.C.S., Eng., Physician and Surgeon respectively to the Farringdon General Dispensary and Lying-in Charity, London, found a 2 per cent. solution of beta-eucaine sufficient for topical application to cause anesthesia of the uvula, tympanum, etc., in many of the cases in which they have given it an extensive trial. In one case, male, aged twenty-one, seven drops of a warm 2 per cent. solution dropped into the left ear, and retained (with the head inclined to the right) for five minutes, caused complete anesthesia of the membrana tympani lasting nearly twenty minutes. One advantage beta-eucaine possesses over other anesthetics is that it causes no sickness or irritation, vertigo, syncope or pain, so that it is not necessary to put patients to bed; they may sit up during its use, and can go home with safety after the local anesthetation. This is a great advantage, especially in minor cases.

It is in these latter comparatively minor cases, although painful enough, and serious enough if not overcome speedily and well, that my own experience of beta-eucaine has been gained, and I will now proceed to narrate a few of them, which have been followed by the best results.

Case I.—Mrs. P., whom I recently attended in her seventh confinement, was at same time suffering from a very severe attack of conjunctivitis and choroiditis, with photophobia and extreme pain. I used a slightly warmed 2 per cent. solution of beta-eucaine, with the result that it secured complete anesthesia of the eye, and with a boric acid collyrium reduced the inflammation and effected a cure within five days after the confinement.

Case II.—Mr. McG., aged fifty-four, a sailor, suffering from choroiditis of both eyes, was treated by me in a simlar manner to Mrs. P., just referred to, and recovered perfectly in eight days; he was able to read the newspaper or a book, and to go out on the tenth day, and now, three weeks after, remains entirely free from any eye affection or weakness.

Case III.—Mrs. S., conjunctivitis of the left eye, with a slight threatening in the right eye. Used a 2 per cent. solution of beta-eucaine in the form of two or three drops three times a day, with the result that the atack threatened in the right eye never came to anything, and that in the left subsided in three days after the commencement of the treatment and has not since returned.

Case IV.—Mrs. M., sciatic rheumatism of some standing. She was treated for a week with injections into the gluteus of a 4 per cent. solution of beta-eucaine night and morning, and received great relief from it, although she had previously tried nearly every known remedy, including morphine, without avail.

Case V.—Grace Ch., aged four and a half years, toothache. A pledget of wool soaked in a 2 per cent. solution caused anesthesia, and gave relief each time it was applied, and on the second day the pain left, and did not return. The wool was left in for twenty minutes on each application, and then renewed occasionally whenever the pain threatened to come on.

Case VI.—William C., aged eight years, toothache. Treated in the same way as the previous case, Grace Ch., and with equally good and satisfactory results.

Case VII.—J. R., aged fifteen months, earache, right side very bad, left very slightly. A 2 per cent. solution was used at bedtime on cotton-wool, and repeated once toward morning. It produced complete anesthesia of the membrana tympani, tympanum and ossicular chain; and although the child was in great pain when first seen, the next day there appeared to be nothing wrong, and the application has not been required to be used since.

Case VIII.—Stanley G., aged six years, otitis. Here a 4 per cent. solution was used, with complete cessation of pain and inflammation on the second day.

Case IX.—Mr. M., aged sixty-two years; also suffering from otitis, and treated with a 5 per cent. solution, with complete cessation of pain on the fourth day, and no subsequent return. He has now resumed his occupation.

Case X.—Miss C., aged nineteen years, very severe earache; also recovered in four days by the use of a 5 per cent solution of the beta-eucaine, applied on pledgets of cotton-wool, and lightly retained in the outer cavity of the ear.

Case XI.—Miss M., aged twenty-three years, barmaid, suffering from severe earache and neuralgia on right side, from standing almost continuously from morning till night in the draught of a saloon-bar door. She used a 5 per cent. solution in the ear, and a warm 8 per cent. solution to bathe the face frequently during the day, with the result that at the end of three days she was again able to resume her occupation, and has not since suffered from any pain or discomfort.

Case XII.—Mr. P., carman, thirty-four years of age, suffering from otitis and neuralgia. Was treated in the same manner as in the last case, and resumed his work, which he has since continued, on the fifth day after the commencement of the treatment.

In none of the eye cases were there any signs of my lriasis, nor disturbance of the accommodation, nor injury to the cornea; on the contrary, very great comfort and improvement in every respect. In fact, even in infants, I have found the use of beta-eucaine to be absolutely non-irritating, safe and recommendable. When not used in too great strength, it possesses many advantages over any other anesthetic, whilst not lacking any of their advantages or reliable qualities. I believe it to be an extremely useful and reliable anesthetic, and obtainable at a moderate price, so that it can be fairly tried in working-class practices as well as amongst the better classes.

Case XIII.—J. W., laborer, Cleobury, Mortimer, Salop, in the employment of Messrs. Morrison & Mason, Glasgow, contractors for the new Birmingham waterworks in the beginning of August this year was suffering from severe otitis, with sleeplessness, headache and loss of appetite. I treated him with M. sod. rhei c. gent. co. et liq. m. pip., and with a 5 per cent. solution of beta-eucaine applied in the ear on cotton-wool, with the result that the pain entirely disappeared in thirty-six hours, and has not returned, nor has he at any time since required to be off work from this or any other cause.

ANGINA PECTORIS.*

By MARVIN E. NUCKOLS, M.D., Richmond, Va ,
Lecturer on Operative Surgery, University College of Medicine

In reviewing all accessible literature on the subject, I find that there is a diversity of opinion as to the exact nature of the condition, some contending that it is but a symptom of some more or less grave vascular lesion, while others claim that it is a disease in itself, always having a definite group of symptoms. No less an authority than William Osler states that it is nothing more than a symptom. Clifton Allbut, a distinguished English physician, holds the exact opposite. When we find such authorities as the above holding opinions so entirely different, we should not wonder that the lesser lights have vague and indefinite ideas regarding angina pectoris.

In discussing this condition, I shall of necessity have to deal with a great deal that is now well known to you all; however, in doing so I shall endeavor to present it in such a way as to arouse some interest and thus provoke a full discussion of the subject. I wish to be understood at the beginning as not believing in pseudo-angina pectoris; but believe that angina pectoris is angina pectoris, and that the only difference in the cases seen is one of degree, therefore I eliminate such conditions as the agitations of neurotic women generally due to hysteria; indigestion or intercostal neuralgia, and also certain spasms of tobacco poisoning which differs widely and fundamentally from angina pectoris.

---

* Read before the Richmond Academy of Medicine and Surgery, November 26, 1901.

Having then eliminated this, we will take up angina pectoris proper, and we shall find that it is characterized by a very definite group of symptoms. Pain is usually the most prominent, but it is the character of the pain which is of so much value. It cannot be likened to any other pain, being sharp and stabbing, located behind the sternum (not in the heart), radiating upward toward the left shoulder, neck and head, and down the left arm into the fingers, and sometimes into the testicles, which may swell. As I have mentioned, there is no pain in the heart, but there is a feeling of depression or of something lacking in this region. The peculiarity of this pain is that it is accompanied by a feeling of constriction about the chest and neck likened to the pressure of a vise. Balfour describes it as a feeling as if a mailed hand grasped the chest and squirted through its fingers flashes of agony. This is often accompanied by convulsive movements of the muscles of the whole body, but particularly of the chest, neck and arm.

The expression is extremely anxious, manifesting an indescribable fear of impending dissolution. The attitude is one of terror-stricken stillness. The body is covered with beads of sweat, and the extremities are cold and clammy. Strange to say, the pulse is, as a rule, unchanged. We have no dyspnea like that so often seen in heart disease, though respiration may be increased in frequency, and during severe paroxysms temporarily suppressed. Pain is sometimes entirely absent, or may begin in the head and extend upward. In these cases, the restrossternal pain is not so severe.

The indescribable fear of impending death is never absent. The preceding are the usual symptoms of an ordinary attack which may last only a few seconds or a few minutes, to be followed by others with increasing frequency.

The attacks are brought on by some unusual or violent exercise, though they may come on while in bed during the night, without any apparent cause. As to the actual cause of angina, very little is definitely known. It is certainly not always due to heart disease, as is abundantly proven both at the bedside and at postmortems. A fatal case is reported by T. E. Bullard, which he saw in 105 paroxysms of true angina, during the last of which the patient died. There were no evidences during life or death of any organic change. Whatever constitutes angina pectoris, this fact is very evident, that a heart organically diseased will fail under repeated attacks of angina, whereas one with no evidence of disease may partially or completely recover.

It is argued by some that a vaso-motor spasm is the immediate cause of angina, bringing on an increased arterial tension and throwing extra work upon the heart. In support of this theory they lay great stress upon the good results derived from the administration of nitrites, but we must remember that the nitrites relax the heart as well as the arterioles, and that they possess certain anodyne and antispasmodic properties. The majority of cases of angina show but little if any increase in tension. If angina is due to increase of tension, why don't we always have it in all forms of heart disease accompanied by increase in tension? Is it not possible for pain to cause the increase in tension if there be any? We have abundant evidence that pain can cause increase in tension; as examples of this I might mention kidney-colic, cramp in the abdomen, etc.

A theory held by many is that it is a cramp of the heart-muscle. Osler states that we may have a localized cramp, or a cramp of some of the muscular fibers of the heart. This theory, to me, seems altogether untenable, for I cannot conceive of a muscle or some fibers of a muscle undergoing cramp and still being able to act. It seems to me the power of the muscles is temporarily lost. The quality of the heart muscle to undergo rhythmic contractions is too deeply implanted in its nature to give place to any change, save to either stop completely and permanently, or to prolong diastole. No drug or electrical stimulus can do more than increase force of systole or prolong diastole.

A third theory is that it is nervous in origin. This to my mind seems to explain some cases, particularly those with pain beginning in the hand and extending upward, resembling the aura of epilepsy.

A theory accepted by many is that it is a neuritis of the cardiac plexus. In this case, pain should always be present, for it is hard to conceive of a neuritis without continuous pain.

A theory that will explain a great many cases is that the cause lies either in an acute or chronic aortitis near the root of the aorta, and as the cardiac plexus of nerves lies in close relation, a neuralgia may be set up secondarily in this plexus. However, let the cause be what it may, we know that the condition is always characterized, with very little variation, by a definite group of symptoms, and that we do not always find manifest organic lesion either of the heart or blood vessels.

It is supposed that the pain is a referred pain, and that it is due in many cases to increased pressure on an inflamed aorta, manifested through the cardiac plexus. One proof of this is seen in mitral regurgitation; if angina has been present, relief is afforded when the compensation fails.

As to how angina kills, there is a difference of opinion. Some say that it is a reflex from inhibition of the vagus. This inhibition is brought about by a violent pain, the weak and degenerated heart and blood-vessels being unable to survive the shock.

The treatment may be divided into two parts: (1) During the attack. (2) During the interval. During the attack, inhalations of amyl nitrite. If these fail, use chloroform or ether by inhalation, and, as a last resort, give morphia and atropia hyperdermically. Use hot applications over the region of the heart.

During the intervals. (a) Hygienic and dietetic. Complete change in habits must be advised. Attention should be given to the bowels to see that they act regularly. Avoid excesses of all kinds, particularly of eating and drinking. The diet should be regulated so that no digestive disturbances shall arise. Instructions should be given to avoid excitement and violent exercise.

(b) Medicinal. Nitroglycerin should be given in full and increasing doses. If degeneration of the arteries or any tendency toward rheumatism be evident, iodides should be given in full doses, extending over long periods, but always with an eye to the condition of the stomach.

306 East Main Street.

Society Meetings.

RICHMOND ACADEMY OF MEDICINE AND SURGERY.

Regular meeting held November 26, 1901, Stuart McGuire, M.D., President, in the chair; Mark W. Peyser, M.D., Secretary and reporter.

Dr. Marvin E. Nuckols read a paper on "Angina Pectoris." (See Ms.)

DISCUSSION.

Dr. M. D. Hoge, Jr., said that the diagnosis of a typical case of angina pectoris was not difficult. As to the pathology, in the majority of well marked cases, some obstruction of the coronary arteries was found; again, an atheromatous degeneration of the base of the aorta could be frequently detected. In some few cases, postmortems presented no pathological changes to the naked eye. But the practical part of this disease was the treatment. The nitrites were the remedies used to the best advantage. In one case in his own practice, where amyl nitrite and other remedies had been employed without benefit, nitroglycerin at regular intervals for several months, afforded marked relief. It was well to know that the continued use of nitroglycerin required constant increase in the size of doses. One one-hundredth of a grain was sufficient for but two or three weeks. Patients could stand astonishingly large amounts. Dr. Hoge reported a case of pseudo-angina pectoris in a young girl, due probably to hysteria.

Dr. J. S. Wellford said he had seen many cases of pseudo-angina pectoris, but was satisfied that he had not seen more than three or four cases of the true form. In one patient, whom he had the opportunity of examining several times, he could never detect any sign of heart disease; but she died suddenly while at stool, probably from straining. The most diagnostic symptom was pain radiating down the left arm only as far as the elbow. He always regarded the disease as nervous, and gave the nitrites, or chloroform or ether, the latter two to their stimulating stage only. If there were any accompanying heart disease he treated that also.

Dr. J. Allison Hodges said he had come to the conclusion that all cases of angina pectoris were either nervous in origin or due to lesions of the aorta or aortic valves, the last two being the most frequent and important causes. Text books would lead one to believe that the attack was spasmodic and evanescent, but he had seen cases in which it would last indefinitely. He agreed with Dr. Hoge regarding the value of nitroglycerin. Amyl nitrite, chloroform or ether had never been of benefit in his hands. Morphine and atropine afforded the quickest relief, but were dangerous in that their use led to the formation of the morphine habit, Nearly all of his cases, when seen, were already habitues. It was of greatest importance in treatment to immediately and absolutely change the method of life and regulate the diet of the sufferer. He did not take stock in the diagnosis of coronary disease before death..

Dr. William S. Gordon said that in diagnosing angina pectoris the first thing to do was to not confound it with aortic disease. It was difficult to explain death from it by postmortem. He referred to a case seen by Dr. H. M. Taylor and himself, which was thought to be disease of the liver, the patient having glucosuria and albuminuria. He had pain in the epigastrium, but never in the arm. Answering a hurried summons, he found the patient dead. The man was intemperate, and had arterio-sclerosis. In another case, every time there was undue exertion pain occurred at the pit of the stomach. There was a pericardial friction murmur at the tip of the sternum, which accounted for some of the pain, but the patient when lying down had a mitral systolic bruit, and the pain then came in the right place. Recurring to his first statement, Dr. Gordon said that remarks of the previous speakers did not wholly apply to the subject under discussion. Was the cardiac pain due to spasm and pressure on the sensory nerves? In aortic trouble death was usually due to dilatation of the left ventricle. If neuritis were the cause of the pain, as argued by some, it would remain in the intervals between attacks; but in true angina the patients were then apparently well. It could not be due to dilatation and excess of pressure in cases in which the pulse was not affected. The sudden death must be due to dilatation and paralysis of the heart; mere pain did not kill.

The nitrites and iodides were the remedies to be used. Nitroglycerin acted by producing arterial dilatation, the vessels during the attack being spasmodically contracted. The agent did not dilate the heart. If it did, the patient would die more quickly. He had seen several cases in which, owing to impaired nervous mechanism, the pulse became thready, and nitroglycerin administered, produced dilatation and saved life.

Dr. Hodges asked if Dr. Gordon did not, after all, come back to the point that the aorta was mainly at fault. Was there not an aortitis at the base of it all? Of course, the pains of aortic valve disease and angina pectoris were entirely different.

Dr. Gordon, in reply, said that it depended upon the definition of the disease. If this included aortic trouble, he agreed with Dr. Hodges; but he believed the disease ought to be considered to exist only when the postmortem showed no anatomical lesions. He thought there was to a slight extent a similarity between it and epilepsy, but that they were not identical.

Dr. Nuckols, in closing the discussion, said he did not believe in the pseudo form of the disease; but he thought there was a difference in degree in true angina, and that there was always some organic lesion, though it might escape detection. Regarding dilatation, a person suffering and having mitral regurgitation, was relieved when compensation failed.

REPORTS OF CASES.

Dr. Hugh M. Taylor reported a case operated upon because of three interesting features it presented. The patient's face looked as though she had taken large amounts of nitrate of silver, the body, however, being naturally jaundiced. Her attending physician had given bichloride of mercury. The gall-bladder was enormously distended, reaching three inches below McBurney's point, and being perceptible from a distance. It was difficult to tell whether it was the gall-bladder or cystic enlargement of the kidney. Her physician had tapped it three weeks before, and had drawn off a quantity of limpid serum, which was difficult to understand. The case was also interesting because in the absence of jaundice and hypertrophic sclerosis, he would have said it was an appendicular enlargement. Because of her age and appearance, he expected to find cancer of the liver, but there was none. A quart or more of muco-serous fluid with a little pus, and tinged with bile, was drawn off, and a large number of stones removed from the gall-bladder by a cholecystostomy. None were looked for in any of the tubes because of the age and precarious condition of the patient. He expected her to die from cholemia, but if she did not, he would operate further.

BALTIMORE MEDICAL AND SURGICAL ASSOCIATION.

A regular meeting of the Baltimore Medical and Surgical Association, was held at the hall of the Medical and Chirurgical Faculty, 874 North Eutaw street, on October 14, Dr. Chas. G. Hill presiding; Dr. Eugene Lee Crutchfield, Secretary.

Prof. Henry E. Shepherd lectured on the subject of the relationship of literature to the medical profession, referring to the literature of the ancients. Among their writings may be mentioned their references to the plague. "The Hypocratic Oath" and the "History of Medicine" were described in detail.

Chaucer and Shakespeare, in their writings from the days of Edward III., to Edward VI., and others from Thomas à Becket and later, refer to a "doctor" (constantly), going along with their stories and histories. This "doctor" being an astronomer and medical ideal in sympathy with allied arts. All were gentlemen who were well-read.

The great medical doctor, Gatisden, in South Carolina, was referred to by Professor Shepherd, in regard to the doctor's treatise on small-pox, the diet, and his references to the Bible.

In the Medieval Ages medical men were either monks or the like. In those days we read of, for instance, the "black-death," which was associated with religious superstition, but is now regarded as malignant scarlet fever.

During the Elizabethan period such men as Bacon and Shakespeare played prominent roles in the interpretation of the doings of men in the Aesculapian calling. In the plays of "Hamlet" and "King Lear," we find the doctor not of minor consequence. In "Macbeth," in the third scene of the fourth act, Shakespeare shows his acquaintance with the doctor of that day.

Among the Jews, Dr. Lopez is noted in literature for his scholarly masterpieces, especially regarding "gun-shot wounds."

Strange as it may seem to relate, there is no reference made in Shakespeare to nervous diseases, yet he does refer to the Pia-Mater, and in "King Lear," Professor Shepherd found much association with the usual phenomena manifested in the average case of hysteria. Shakespeare also refers to "Fever," known then as the "sweating sickness," and Dr. Kies, in 1552, refers to it in commenting on Shakespeare's able work, "King John."

John Locke, in 1668, notably writes on the subject of "Fever," and Sydenhiem as early as 1689, in his often-quoted writings, also refers to this subject.

In the Seventeenth Century, Helmholtz and Kelvin notably referred to medicine and the healing art. Later we find the great Keats abandoning surgery, wherein he had become eminent, to become a devotee to poetry. The Nineteenth Century turned the current of medical thought by the views of Browne, Nurran, Watson, and the familiar Darwin.

Professor Shepherd's very forcible, eloquent, and interesting lecture met with usual appreciation, and his many quotations from the authorities at his ready command, evoked from the Society its expressions of the keen appreciation which his lecture commanded and merited.

Dr. Winslow offered a motion that the Society express with a vote of thanks to Professor Shepherd the enjoyment that it realized from his lecture. Dr. Taneyhill, in seconding the motion, said that in doing so he was actuated not alone to congratulate the Society on the great treat of the hearing the lecture of Professor Shepherd, but complimented Professor Shepherd on his versatility, as he (Dr. Taneyhill) had heard him before when other subjects were dwelt upon, notably the Scriptures.

The lecturer received much applause.

The society then adjourned to meet on the 4th Monday of the month, at the Baltimore Medical College, on invitation of the Faculty.

The meeting was followed by a lunch and smoker, in which Prof. Charles G. Hill, the President, proved his adaptability of making comfortable all of the members and their guests.

The regular meeting of the Baltimore Medical and Surgical Association was held at the Baltimore Medical College on the above date—the President, Dr. Chas. G. Hill, in the chair.

The meeting was largely attended, and after the scientific proceedings a collation was served in the college building.

There were no committee reports.

Dr. Chas. G. Hill exhibited a patient who, two years ago, received an injury causing depression of the skull followed by epilepsy, and Dr. Blake removed the depressed bone. The question is—will the removal of depressed bone cure epilepsy? Frequently it does not. Dr. Hill believes that epilepsy is not a disease of the nervous system. It is a neurosis plus something. What that is, he has been trying to find out. He believes that ammonium in excess may be the cause. The stomach, he thinks, is often at fault, and he believes that he has discovered an epileptic stomach. The epileptic patient should have neurotic food—nitrogenous diet. This patient operated on 3 or 4 weeks ago has had one recurrence of the attacks since the operation. Want of digestion of starchy food is characteristic of epileptics. This patient used to have two attacks a week, but now, after the operation, he feels better, is possessed of clearer intelligence and is generally much improved.

Dr. Hill also exhibited a patient suffering from neuritis. He also referred to a case of "Pianist's neurosis." He had quite recently seen some cases of writer's palsy in very young children.

The patient exhibited was one of general multiple neuritis. He went away on a summer vacation in August and became thoroughly chilled. The trouble dates from that time and to no other cause could it be assigned. Cases of idiopathic neuritis are thought to be infectious. Under the influence of cold the system is thought to be less able to resist the organism. Treatment consists of hygiene, iodides, strychnine, etc. Strychnine is dangerous in the congestive condition of the spinal cord. It is useful in diseased states of peripheral nerves. In the case shown there was not much pain, as the motor nerves principally were affected.

DR. JOHN D. BLAKE.

Dr. Blake exhibited a young man upon whom he had operated last spring. He removed a stone from the bladder and another from the kidney. The nutrition of the patient was good. At first a suprapubic cystotomy was performed, and later the kidney was operated upon. Dr. Blake showed the stones. The patient showed blood and pus in the urine, which speedily cleared up. The blood came from the bladder.

Case 2.—A boy, on June 23, suffered an injury to his arm. He was caught in a cog-wheel, which tore away considerable tissue. Seven or eight days subsequently he developed tetanus. Dr. Blake also showed a case of a young man who came into contact with an electrical apparatus in the B. & O. tunnel; he (the patient) being violently thrown down, and in this case also tetanus developed. Dr. Blake said that these two cases belong to a series of 8 (eight) cases that he had treated with seven recoveries. In all of these cases opisthotonos was marked. Antitoxin was given freely, or rather heroically, 10 to 12 c.c., being administered every 3 hours until patient was thorughly saturated. Until the convulsions ceased tr. cannabis indica, and chloral were given, and later tonics were administered. Dr. Blake next showed a patient upon upon whom he operated for a fractured patella. In his opinion it is not conducive to the best results to make a transverse incision over the site of injury, but under strict asepsis he makes a semicircular incision with curvature downwards, then removes all fragments of tissue between the bone surfaces, but does not wire the bone surfaces or the fragments. Dr. Blake also showed two ovarian tumors that he had removed which weighed respectively thirty-nine and twenty-two pounds. Patients recovered. Dr. David Street exhibited patients suffering from typhoid fever. In all of the three cases rose spots were well marked. All were being treated by hydrotherapy. Egg albumin, whisky and strychnine were employed as required, but Dr. Street laid much stress on the importance of the cold pack and the Brandt treatment, the last reports of which showed a mortality of only one per cent. (by tubbing).

Dr. S. T. Earle exhibited a patient upon whom he had operated for rectal prolapse. He followed Dr. Tuttle's method, and found it much better than others. Kangaroo tendons were used and sutures brought above the sacrum, then held in position by small holder, the assistant having two fingers in the rectum. The diet of the patient was to be semi-liquid. Sweet oil was given a week after operation. The bowel in this case protruded eight inches.

Dr. Charles S. Potter than gave a lantern exhibition.

EUGENE LEE CRUTCHFIELD, M. D., Secretary.

GAILLARD'S MEDICAL JOURNAL.

A MONTHLY JOURNAL OF MEDICINE AND SURGERY

Scientia et Veritas Sine Timore.

PUBLISHED BY THE NEW YORK MEDICAL PUBLISHING CO.,
220 Broadway, NEW YORK.

All communications, of either business or editorial character, should be addressed to Gaillard's Medical Journal, 220 Broadway, New York.

Articles for publication will be received with the understanding that they are contributed exclusively to this journal. Reprints will be furnished at actual cost, orders for which should accompany the manuscript. Authors of accepted articles may receive twelve copies of the issue in which they are published. Necessary illustrations will be furnished without expense to authors when suitable drawings or photographs are furnished.

EDITORIAL.

We publish this month a most suggestive article by Dr. Charles Denison of Denver, on the "Relation of Outdoor Life to High Altitude Therapy," in which the author very clearly sets forth and ably defends his theory that "the good results of outdoor life and the bad results of deficient ventilation are both increased by altitude."

The article, as a contribution to rational climatology, will be of interest to every practitioner who sees tubercular patients who may be sent away. It is not our intention to extract the articles here, and we would recommend that the reader of this read it, but as it deals merely with High Altitude Therapy, it may not be out of place to outline the present attitude of practice toward the influence of climate in Tuberculosis of the Lung.

Treatment of diseases in general may be said to fall easily into two groups. First. Specific medication directed toward the removal of a cause—"treatment of the disease itself." Such is our treatment of malaria; of syphilis; such is the anti-toxin treatment of diphtheria and so on. Within the second class, however, our efforts are directed toward reinforcing the struggle of the organism toward repair and recovery. It is in this group that the treatment of tuberculosis of the lung must remain at present, and in any given case in which the disease is recognized it will be well for the physician to remember that as yet we have no good evidence that any method of inhalation or of internal medication can do more than palliate the bronchitis and aid in the building up of the patient.

We do not wish it understood that we underestimate the value of creosote and its congeners, but we do wish to maintain that all such methods are to be considered of secondary importance as compared with the influences of climate and feeding.

In the matter of climate, however, it is to be distinctly remembered that this is to be selected not because of its inherent hostility to the tubercle bacillus, but because of its suitability to each given patient. We cannot do better than to quote Dr. Delafield: "The selection of a proper climate is to be made with reference to the individual rather than to the condition of the lungs. It should be a climate where he feels well, eats well, sleeps well and gains flesh and strength. If no one climate answers this purpose the patient should travel from place to place."

The elements of a desirable climate may be said to be equability, dryness, sunshine, pureness and altitude. It would be difficult to find two men who agree as to the relative importance of these qualities, but as such a question is purely a theoretical one, individual opinion is of little value.

The higher altitudes are considered contraindicated by some authorities in the following conditions: Severe and frequent hemoptysis, weak heart, laryngeal complications and neurasthenia. The test of the climate, however, is to be its effect upon the patient in every individual case. The importance of outdoor life has been emphasized by Dr. Denison in his article, to which we must again refer the reader.

Book Reviews.

TYPHOID AND TYPHUS FEVERS. By Dr. H. Curschmann of Leipzig. Edited, with additions, by William Osler, M.D. Professor of the Principles and Practice of Medicine, Johns Hopkins University. Handsome octavo of 646 pages, illustrated, including a number of valuable temperature charts and two full-page colored plates. W. B. Saunders & Co., Philadelphia and London, 1901; cloth, $5.00 net; sheep or half Morocco, $6.00 net.

This, the first volume of the American edition of Nothnagel's Encyclopedia, marks the beginning of what appears on the surface to be a most courageous speculation on the Messrs. Saunders's part. We congratulate them upon their nerve, and wish them the best success in this undertaking.

The volume which initiates the series certainly makes a brilliant beginning. It must rank as authority on its subject, carrying as it does on the title page the names of Curschmann, Osler and Stengel.

For while the German monograph of Curschmann, the translation of which furnishes the basis of this volume, has been recognized as the standard work upon typhoid, the American editors have added largely to the volume. We quote from Dr. Osler's preface an account of the more important changes we have aslo received:

"The chapter on the Bacteriology of Typhoid Fever has been thoroughly reviewed and new material added, particularly on the distribution of the typhoid baccili, especially in the urine, in the ease spots and in the blood. In the chapter on pathology many minor additions have been made, and the important work of Maloney has been incorporated. The literature on the localized lesions due to the bacillus, particularly of the bones, mimingers, heart, pleura, etc., has been carefully revised and brought up to date. Thayer's exhaustive study of the state of the blood has been utilized. The surgical complications of the disease have been very fully reviewed with the aid of Keen's monograph. The chapter on Perfonation and Peritonitis has been practically rewritten, as has also the section on the Hipolic Complications of Typhoid Fever."

The book will find a place wth the most notable publications of the year and we anticipate for it a welcome worthy of the American Profession.

We have also received for review:—

Progressive Medicine, Vol. IV., 1901. A quarterly digest of advances, discoveries and improvements in the medical and surgical sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Lea Brothers & Co., Philadelphia and New York; octavo, handsomely bound in cloth, 400 pages, 13 illustrations. Per annum, in four cloth-bound volumes, $10.00.

A Treatise on the Acute, Infectious Exanthemata. Including Variola, Rubeola, Scarlatina, Rubella, Varicella and Vaccinia, with especial reference to Diagnosis and Treatment. By William Thomas Corlett, M.D., L.R.C.P., Lond., Professor of Dermatology and Syphilology in Western Reserve University, Etc.. F. A. Davis Company, Publishers, Philadelphia; illustrated by 12 colored plates, 28 half-tone plates from life and 2 engravings; pages viii-392; size, 6¼ by 9¼ inches; sold only by subscription; price, extra cloth, $4.00 net, delivered.

A Text Book of Obstetrics. By Barton Cooke, M.D., Professor of Obstetrics in the University of Pennsylvania. Third edition, thoroughly revised and enlarged. W. B. Saunders & Co., Philadelphia and London, 1901; royal octavo, 873 pages, with 704 illustrations, many of them in colors; cloth, $5.00 net.

A Text Book of the Practice of Medicine. By James M. Anders, M.D., Ph.D., LL.D., Professor of the Practice of Medicine and of Clinical Medicine, Medico-Chirurgical College, Philadelphia. Fifth edition, thoroughly revised. W. B. Saunders & Co., Philadelphia and London, 1901; one handsome octavo volume of 1297 pages, fully illustrated, cloth, $5.50 net.

TABLE OF CONTENTS.

Original Articles.

Arterio-Sclerosis.; (Illustrated). By Talbot Jones, M.D., St. Paul, Minn.; Visiting Physician to City and County and Bethesda Hospitals. The writer calls attention in this most valuable paper to the increasing mortality from this disease and its apparent neglect by the physical diagnostician, and in his conclusion makes a strong plea in the interest of the patient for more consideration of this insidious diseased condition. The essayist begins his paper by defining the term arterio-sclerosis, and proceeds most interestingly to the causes of the disease, points for diagnosis, statistics, comparison, etc. This treatise is undoubtedly the most complete contribution to literature on this subject that has ever been presented...... 1

The Diagnosis and Prognosis of Chronic Interstitial Nephritis. By Edward F. Wells, M.D., Chicago. Although the writer offers an apology for his article, he nevertheless handles his subject in a masterly way, and gives much valuable information to the medical practitioner; a point well taken is his warning of men of middle age of apparent robust appearance, hustlers and successful in business; close scrutiny and most complete and careful examinations of the urine are demanded in this class of subjects; the author gives some good illustrative examples of them in his paper; the sphygmographic tracings of the pulse which accompanies the writer's remarks are striking and significant; the author cites a number of cases of the contracted kidney.............. 10

Continued on page 9.

Prevent Accidents.

Very many physicians make it a routine rule to administer ALETRIS CORDIAL in teaspoonful doses four times a day to all of their pregnant patients for several weeks during the latter part of gestation. Experience has taught them that ALETRIS CORDIAL not only prevents miscarriage, but also facilitates parturition.

A sample bottle will be sent FREE to any physician who desires to test it, if he will pay the express charges.

RIO CHEMICAL COMPANY, St. Louis, Mo., U. S. A.

Orphol (Betanaphtol=Bismuth=Von Heyden)

A MOST RELIABLE AND EFFICIENT ANTISEPTIC AND ASTRINGENT FOR THE GASTRO-INTESTINAL TRACT.

Orphol is a neutral, non-caustic and non-poisonous chemical compound composed of 80% of bismuth oxide and 20% of betanaphtol. It is a fawn-colored powder of faintly aromatic taste and odor, and insoluble in water. Experiments made in **Professor Nencki's** laboratory at the Imperial Institute for Experimental Medicine at St. Petersburg show that its decomposition begins in the stomach and is completed in the small intestine.

Orphol sooths the irritated and inflamed intestinal mucosa, acting, from its slow decomposition, as a continuous and harmless disinfectant. It directly destroys the disease germs and neutralizes their poisons; and after absorption fixes the toxic albumins and favors their elimination. It is free from the dangers of carbolic acid, naphtol, sublimate, etc., and its use obviates the necessity of employing complicated and uncertain diarrhœa and cholera mixtures.

A practical intestinal antisepsis can be effected and maintained with Orphol, and it is indicated in all catarrhal and fermentative gastro-intestinal processes, ptomaine poisoning, gastritis, summer diarrhœa, dysentery, typhoid fever, etc. It agrees with the most delicate stomach, and children take it without difficulty.

Orphol has been extensively and most successfully employed during the past six years. Reprints and abstracts of papers by **Drs. R. W. Wilcox** and **Louis Fischer** of New York; **D. D. Stewart** and **Hugo Engel** of Philadelphia; **E. Chaumier** of Tours, and others, will be mailed upon request.

DOSAGE.

For Adults: 25 to 75 grains, or 5 to 15 tablets, daily in divided doses.
For Children: 3 to 5 grains, or ½ to 1 tablet, every three or four hours on an empty stomach.
Orphol in powder form is supplied in 1-oz. vials only.
Orphol in 5-grain tablets is supplied only in flat, oval vials, containing 50 tablets.

CAUTION TO PHYSICIANS.

Complaints having reached us from physicians that certain mixtures and tablets purporting to contain bismuth betanaphtolate have had a caustic and burning taste, we have found upon analysis that they contain the ordinary irritant naphtol, and not the neutral, tasteless and insoluble chemical compound of Von Heyden. To preclude all possibility of error we would request the profession to prescribe **Von Heyden's Betanaphtol=Bismuth** under the more distinctive name of "**Orphol**".

SCHERING & GLATZ, 58 Maiden Lane, New York,
Literature furnished on application. Sole Agents for the United States.

CREOSOTAL

CREOSOTE CARBONATE—
Von Heyden.

DUOTAL

GUAIACOL CARBONATE—
Von Heyden.

ANTISEPTIC CREDÉ

CITRATE OF SILVER—
Von Heyden.
CHEMICALLY PURE
POWDER AND TABLETS.

CREDÉ'S LACTATE OF SILVER

CHEMICALLY PURE
POWDER AND TABLETS.

COLLARGOLUM

SOLUBLE METALLIC SILVER
—Credé.

UNGUENTUM CREDÉ

OINTMENT OF SOLUBLE
METALLIC SILVER.

XEROFORM

TRIBROMPHENOL BISMUTH
—Von Heyden.

HYRGOLUM

SOLUBLE METALLIC
MERCURY.

CONTENTS (Continued from Page 7).

Pathology of Diseases of the Liver. By M. D. Hode, Jr., M.D., Richmond, Va., Professor of Histology, Pathology, etc., University College of Medicine. The reader will find this a most interesting essay on the more important and at the same time most common affections of the liver. The essayist is a recognized authority on this subject, and we present this treatise confident that our readers will find in it much of value.............................. 20

Editorial.

Hidden Sources of Contagion......... 23
The Absorption of Toxins............. 25
Smallpox............................ 26

Society Proceedings.

Twenty-sixth Annual Meeting of the American Academy of Medicine.... 27
Association of American Medical Editors 28

Book Reviews...................... 29

Therapeutics.

Disinfection and Disease Prophylaxis. By S. C. Martin, Jr., M.D., St. Louis, Mo. 21
Some Obstetrical and Gynecological Treasures of the Army Medical Museum.......................... . 23
Intestinal Diseases of Children. By George Howard Thompson, M.D., St. Louis, Mo...................... 24
Experimental Reports with Gude's Pepto-Mangan. By J. S. Perekhan, M.D., Chicago, Ill.................. 25

Index to Advertisers................ 31

WORLD'S FAIR
AK
OPPOSED TO PAIN
ST. LOUIS. U.S.A. 1903

THE ANTIKAMNIA CHEMICAL COMPANY – ST. LOUIS – U. S. A.

THE TWO GREAT REMEDIES OF THE AGE

Hayden's Viburnum Compound
and Hayden's Uric Solvent

"H. V. C." the standard **ANTISPASMODIC, NERVINE,** and **UTERINE TONIC.**

Used and recommended by the majority of the Medical Profession of the United States.

The **URIC SOLVENT OF DR. HAYDEN** has been most successfully employed in all diseases of the **KIDNEYS, RHEUMATISM, NEURALGIA, GOUT,** etc., as it removes the cause of the complaints by eliminating the **URIC ACID** from the system. Send for booklets.

New York Pharmaceutical Co.
SOLE PROPRIETORS
BEDFORD SPRINGS, MASS.

THE TACTICS OF NATURE

are always worthy of careful study. We have taken a leaf from the Old Dame's book in constructing

Hemaboloids

It furnishes the "broken-down" anemic with both the nucleo-albumens of iron-rich vegetables and assimilable tissue nutrients.

DOSE—One tablespoonful 3 or 4 times a day
TABLETS—Two to four 3 or 4 times a day

The Palisade Mfg. Co.
Yonkers, N.Y.

TABLE OF CONTENTS.

Original Articles.

The Timely Diagnosis of Surgical Tuberculosis. By Daniel N. Eisenbrath, M.D. Subject very vast and important; how long will patient live; examiner must not expect to be a diagnostician alone; scrofula and tuberculosis; hyperlastic glands; two-thirds of living people carry latent tubercular bacilli; intestinal tuberculosis and infected ingesta; favorite locations; men infected more frequently than women; genito-urinary tuberculosis; tubercular arthritis; skin of the rectum; chronic fistula-in-ano; three or four years a safe probationary period. 32

The Prognosis of Various Types of Albuminuria. By Talbot Jones, M D. What is albumin and albuminuria; composition of the urine; quantity of albumin not conclusive in diagnosis; meat eaters vs vegetarians; amount of urea as a prognostic factor; the age of the subject; organic and functional albuminuria; albuminuria at different times in the day or night; figures and facts; infection or toxic albuminuria; gout and lead poison; various functional disorders; the so-called minimum albuminuria of the French; anemia; nervous disorders; albuminuria and diabetes: in pregnancy and the puerperal state not considered in this paper.......................... 39

Diabetes Mellitus and Its Treatment. By James Hall Reed, A.M., M.D., Battle Creek, Mich. This paper is written by a recognized authority on the treatment of this dreaded disease, and is a

Continued on page 9.

Dysmenorrhea.

The experience of the profession demonstrates that ALETRIS CORDIAL (Rio) given in teaspoonful doses, three times a day, not only relieves dysmenorrhea, but, taken continuously, usually effects a permanent cure.

Being strictly a uterine tonic, it has a direct affinity for the reproductive organs, and exercises a healthy tonicity over their functional activity.

RIO CHEMICAL CO., St. Louis, Mo., U. S. A.

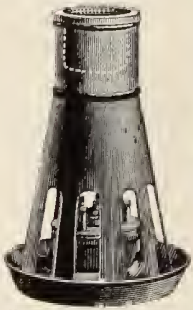
Schering's Formalin Disinfectant and Deodorizing Lamp.

Formalin Lamp

A most energetic disinfector and destroyer of foul and decomposing odors.
An absolutely reliable agent for air purification and sterilization.
Far more efficacious and pleasant than sulphur, carbolic acid, cresolene, etc.
The most efficient destroyer of the disease-producing micro-organisms.
Invaluable in the treatment and prevention of tuberculosis, diphtheria, scarlet fever, measles, whooping-cough, catarrh, influenza, etc.

Does not injure furniture, fabrics, or material of any kind.

When the vapors of Formalin are employed in the treatment of zymotic diseases, or for ordinary air purification and sterilization, one pastil should be constantly evaporated in the upper cup of the lamp. When rapid vaporization is required the upper cup should be removed and the pastils placed directly in the lower receptacle.



Formalin Disinfector

Schering's Formalin Disinfector.

The ideal appliance for the reliable disinfection of large rooms and entire buildings; from 200 to 250 Formalin pastils of 1 gramme each (100% pure formaldehyde) can be vaporized in one disinfector at a time. Approved and recommended by the highest foreign and American authorities and adopted by many Boards of Health and School authorities.

Beta=Eucaine (Eucaine Hydrochlorate "B")

Eucaine "B" has been extensively used in all branches of surgery, dentistry, ophthalmology, etc. Favorable reports concerning it have come from a host of practitioners on both sides of the Atlantic.

In a report made at the Academy of Medicine, Paris, March 29, 1898, published in *The Bulletin Médical* of March 30, 1898, **Prof. Reclus** stated: "**Eucaine 'B'** possesses a number of undubitable advantages. In the first place, **its solution can be boiled without undergoing decomposition, thus permitting it to be sterilized by heat.** This cannot be done with cocaine. In the second place solutions of **Eucaine 'B' are stable and this is the case, to such an extent, that he has been able, in conjunction with Dr. Legrand, to perform a number of long and delicate operations with solutions that were more than four months old.** This is far from being possible with cocaine solutions, as they change at the end of four or five days. Finally, and this is really the most important point, **Eucaine 'B' is 3¾ times less toxic than cocaine.**"

Glutol=Schleich

or Formalin gelatin, is an odorless, non-irritant and non-poisonous antiseptic powder, forming a hard scab in a few hours in contact with a clean wound, and of pre-eminent value in its treatment, since it renders other disinfectant measures unnecessary. Formalin is set free from the compound by the action of the tissue cells; a continuous stream penetrates every corner and crevice of the wound, and effects molecular antisepsis. Acute purulent processes are cut short, and lesions can be relied upon to run an aseptic course.

Urotropin.

A most efficient diuretic, urinary antiseptic, uric acid solvent, and remedy for calculous disease. Rapidly renders alkaline and putrid urine containing mucous, pus, uric acid, and amorphous urates normal in appearance and reaction. It sterilizes the urine, increases its quantity, and dissolves calcuii and deposits. Very valuable in all suppurative diseases of the genito-urinary tract, pyelitis, cystitis with ammoniacal decomposition of the urine, phosphaturia, and also in gouty and rheumatic affections where active elimination of uric acid and the urates is required. Dose, 3 to 7½ grains two to three times a day, best administered in half a pint of simple or carbonated water.

SCHERING & GLATZ, 58 Maiden Lane, New York,
Sole Agents for the United States.

Literature furnished on application.

CONTENTS (Continued from Page 7).

résumé of his experience of over 280 cases in which he officiated as physician or consultant; his conclusions from the life insurance view are most interesting and will undoubtedly have much influence in the relation of the applicant, with the usual evidences of this diseased condition, and his acceptance by the company; from the medical standpoint this article is of exceptional value, giving, as it does, the treatment in detail, quoting cases, etc., that has been so remarkably successful 47

The Action of Tincture Amal in Typical Cases of Phthisis Pulmonalis. By Rutson R. Leonard, M.D., Broome Center, N. Y. A brief review of the writer's experience with Tincture Amal, showing remarkable results obtained, two cases being given in detail 52

Editorial.

Koch's Theory........................ 53
Suggestions for Hot Weather.......... 54
Prosperity and Philanthropy........... 56
Inspection of Fruit and Vegetables..... 58

Society Proceedings.

American Association of Orificial Surgeons................................ 59
American Medical Temperance Association 59
Tri-State Medical Association.......... 60
Therapeutics 21

No Pain beyond this Gate
AK

THE TWO GREAT REMEDIES OF THE AGE

Hayden's Viburnum Compound
and Hayden's Uric Solvent

"H. V. C." the standard **ANTISPASMODIC, NERVINE,** and **UTERINE TONIC.**

Used and recommended by the majority of the Medical Profession of the United States.

The **URIC SOLVENT OF DR. HAYDEN** has been most successfully employed in all diseases of the **KIDNEYS, RHEUMATISM, NEURALGIA, GOUT,** etc., as it removes the cause of the complaints by eliminating the **URIC ACID** from the system. Send for booklets.

New York Pharmaceutical Co.
SOLE PROPRIETORS
BEDFORD SPRINGS, MASS.

An Aphrodisiac
That has stood 10 Years' Critical Test.

Pil Orientalis *(Thompson)*

Contains the Extract Ambrosia Orientalis, imported solely by ourselves; made of the green bark from the Tyunjahb plant of Siam and India, and the Go rah or Yooimbee of the East Coast of Africa New literature and medical testimonials will shortly be ready.

WHAT SOME PHYSICIANS SAY:

Dr. C. H. Harriman, Whitinsville, Mass : "I believe Pil Orientalis is the nearest to being a specific for Impotency of anything ever recommended."

Dr. W. H. Judson, Danielson, Conn.: "Gave satisfaction in a case where everything else had failed."

Dr. G. W. Seaton, Clayton, Ind.: "Relieved a case of Impotency of fourteen years' standing."

Dr. P. D. Peltier, Hartford, Conn.: "Succeeded far beyond my expectations."

Dr. M. R. Latimer, Aquasca, Md : "Used on an old gentleman over seventy years of age for functional Impotency, with decided benefit."

Dr. C. H. Latimer, Gov't Hospital for Insane, Washington D. C. "My patient has been benefited by Pil Orientalis."

PRICE, $1.00 PER BOX. **$9.50 NET PER DOZEN.**
(Plain Label for Dispensing.)

THE IMMUNE TABLET CO., Washington, D. C., U. S. A.

DEPOTS AT : **Texas, San Antonio Drug Co.; St. Louis, Meyer Brothers Drug Co.; New York, Lehn & Fink ; New Orleans, J. L. Lyons & Co.**

TABLE OF CONTENTS.

Original Papers.

Narcotics. By Geo. W. Wells, A.M., M.D., Editor Medical Examiner and Practitioner, Resident Physician Manhattan Life Insurance Company; Member First International Congress Medical Directors; Medical Directors' Association, etc. The question on the use and abuse of alcohol is just now occupying the attention of the medical profession from many sources, both at home and abroad. Dr. Wells presents a full and comprehensive view of the subject with special reference to life insurance expectancy; it comes before the readers of this journal at an opportune time when lifs insurance companies are already seriously considering, if not actually putting into operation, a separate class, under special rates, of the total abstainers; the essayist's contribution on opium, chloral, cocaine, bromides or other anæsthetics is well chosen and interesting, as also his treatment of the use of tobacco; the whole subject is handled in a comprehensive and intelligent manner, and the article should be a valuable addition to our literature on narcotics and their influences as affecting life expectancy 61

Tonsilitis from the Standpoint of the General Practitioner. By A. L. Gray, M.D., Richmond, Va., Professor Physiology, University of Medicine, Richmond. The essayist presents in this most interesting treatise the prognosis, diagnosis, treatment and statistics of this most common and perplexing disease in a clear consise way

Continued on page 9.

Dysmenorrhea.

The experience of the profession demonstrates that ALETRIS CORDIAL (Rio) given in teaspoonful doses, three times a day, not only relieves dysmenorrhea, but, taken continuously, usually effects a permanent cure.

Being strictly a uterine tonic, it has a direct affinity for the reproductive organs, and exercises a healthy tonicity over their functional activity.

RIO CHEMICAL CO., St. Louis, Mo., U. S. A.

Argentamine

Has the most vigorous penetrative properties and the greatest antibacterial power of all the newer silver preparations.

Beta=Eucain

A safe and non-irritating local anæsthetic, four times less toxic than cocain, and sterilizable by boiling without decomposition.

UROTROPIN

Urotropin is the best and most efficient of all urinary antiseptics, sterilizing the urine, increasing diuresis, and dissolving calculi and deposits. By its use alkaline and putrid urines, containing micro-organisms, blood, mucus, pus, uric acid, and urates, are rendered normal in appearance and reaction. It limits suppuration and exercises a healing effect upon the inflamed mucosa of the urinary passages. It is the most reliable sterilizer of the urines of typhoid fever patients, acting also as a prophylactic. It is extremely valuable in calculous disease, acute and chronic urethritis and gonorrhœa, bacteriuria, prostatitis, acute and chronic gonorrhœal cystitis, vesical inflammation of the ammoniacal or acid varieties, pyelitis, pyelo-nephritis, phosphaturia, nocturnal enuresis, and for the irritable bladder of diabetes. It is a powerful antidote to the urinary poisoning that so frequently occurs in suppurative diseases of the genito-urinary organs. In renal colic the attacks are cut short, the after-pains are lessened or abolished, and recurrence is postponed. It has been used to great advantage in all the affections marked by deficient elimination of uric acid and the urates, such as gout and rheumatism; and it is indicated preparatory to and after all instrumentation or operative procedure upon the genito-urinary tract, to sterilize the urine and prevent infection.

Extremely favorable reports of its efficiency have been published by **Professors Nicolaier, Heubner, Casper, Belfield, Wilcox, McGee, Horwitz** and **Elliott, Drs. Brewer, Cohn, Flexner, Richardson, Ehrmann, Howland, Thompson, Dalton, Boeckmann, Cammidge,** and many others.

DOSE.—For adults, 7½ grains two or three times daily, best administered in half a pint of plain or carbonated water. Much larger amounts can be given when indicated, however, up to 60 grains or more daily.

Urotropin, prepared by **Chemische Fabrik auf Actien, formerly E. Schering,** of Berlin, Germany, is supplied in half ounce and one ounce vials and in the form of half gram tablets (7½ grains each), in paper boxes of twenty tablets.

Literature furnished on application.

SCHERING & GLATZ, 58 Maiden Lane, New York,
Sole Agents for the United States.

Glutol=Schleich

An odorless, non-irritant and non-poisonous antiseptic powder for the treatment of wounds; the best dry dressing for burns.

Schering's Glycero=Phosphates

guaranteed to be true glycero-phosphates, and not simple phosphates. Tonics and Stimulants to the nervous structures.

CONTENTS (Continued from Page 7).

that will appeal to the reader. Many valuable points are made and commend it with much pleasure to our readers 75

A case of Cardiopulmonary Murmur, Illustrating the Importance of Differentiation. By P. Maxwell Fashay, M.D., Cleveland, O. An exceedingly interesting and practical contribution from the pen of a writer who always has something of value to contribute to life insurance statistics; it behooves every medical examiner for insurance to read this article carefully and profit by the information conveyed, in simple justice to the company, the applicant and the agent to whom he may be related 80

Editorial.

William McKinley 83
Anti-Vivisectionists in England 84
Learn to Labor and to Wait 84
Reform in Woman's Dress 85
The Transmission of Malaria and Yellow Fever by Mosquitoes 87

Book Reviews 89

Therapeutics 21

No Pain beyond this Gate
AK

THE TWO GREAT REMEDIES OF THE AGE

Hayden's Viburnum Compound
and Hayden's Uric Solvent

"H. V. C." the standard **ANTISPASMODIC, NERVINE,** and **UTERINE TONIC.**

Used and recommended by the majority of the Medical Profession of the United States.

The **URIC SOLVENT OF DR. HAYDEN** has been most successfully employed in all diseases of the **KIDNEYS, RHEUMATISM, NEURALGIA, GOUT,** etc., as it removes the cause of the complaints by eliminating the **URIC ACID** from the system. Send for booklets.

New York Pharmaceutical Co.
SOLE PROPRIETORS
BEDFORD SPRINGS, MASS.

An Aphrodisiac

That has stood 10 Years' Critical Test.

Pil Orientalis (*Thompson*)

Contains the Extract Ambrosia Orientalis, imported solely by ourselves; made of the green bark from the Tyunjahb plant of Siam and India, and the Gorrah or Yoombee of the East Coast of Africa New literature and medical testimonials will shortly be ready.

WHAT SOME PHYSICIANS SAY:

Dr. C. H. Harriman, Whitinsville, Mass: "I believe Pil Orientalis is the nearest to being a specific for Impotency of anything ever recommended."

Dr. W. H. Judson, Danielson, Conn.: "Gave satisfaction in a case where everything else had failed."

Dr. G. W. Seaton, Clayton, Ind.: "Relieved a case of Impotency of fourteen years' standing."

Dr. P. D. Peltier, Hartford, Conn.: "Succeeded far beyond my expectations."

Dr. M. R. Latimer, Aquasca, Md: "Used on an old gentleman over seventy years of age for functional Impotency, with decided benefit."

Dr. C. H. Latimer. Gov't Hospital for Insane, Washington. D. C. "My patient has been benefited by Pil Orientalis."

PRICE, $1.00 PER BOX. **$9.50 NET PER DOZEN.**

(Plain Label for Dispensing.)

THE IMMUNE TABLET CO., Washington, D. C., U. S. A.

DEPOTS AT: **Texas, San Antonio Drug Co.; St. Louis, Meyer Brothers Drug Co.; New York, Lehn & Fink; New Orleans, J. L. Lyons & Co.**

TABLE OF CONTENTS.

Original Papers.

The Mosquito. By Ennion G. Williams, M D., Richmond, Va., Professor Histology, Pathology and Bacteriology in Medical College of Virginia; Pathologist to Old Dominion Hospital, etc. A complete and interesting epitome of the mosquito, his or *her* development, habitat and life. The author acknowledges the aid he has received in his contribution from the recent publication of "The Mosquito," by Dr. L. O. Howard, a book which is receiving a very wide and favorable consideration by the medical profession. It is interesting to note that mosquitoes are not blood-sucking creatures by nature, but nominally are vegetarians, and countless numbers of them live and die in swamps where warm-blooded animals never penetrate. The writer sets forth very clearly the distinction between the malarial-bearing *Anopheles* and the more innocent, but just as pesky, *Culex*. The presence of the mosquito is not necessary in our midst, provided wholesale and concerted measures be taken to exterminate them. This is all well set forth in the author's contribution......... 91

The Parasites of the Malarial Fevers. By Thomas C. Craig, M.D., Surgeon U. S. Navy (Retired), Brooklyn, N. Y. This pamphlet gives the

Continued on page 9.

Dysmenorrhea.

The experience of the profession demonstrates that ALETRIS CORDIAL (Rio) given in teaspoonful doses, three times a day, not only relieves dysmenorrhea, but, taken continuously, usually effects a permanent cure.

Being strictly a uterine tonic, it has a direct affinity for the reproductive organs, and exercises a healthy tonicity over their functional activity.

RIO CHEMICAL CO., 56 Thomas St., New York (formerly of St. Louis).

Send and get one of our magnificent albums entitled "A Gallery of Pictures of Interest to Medical Men," containing twelve handsome colored pictures (no advertisements on face of them) on heavy plate paper, suitable for framing. Sent absolutely free, postage prepaid, one copy only; all extra copies twenty-five cents each. Samples of Celerina, Aletris Cordial, or S. H. Kennedy's Ext. Pinus Canadensis sent free to any physician who will pay express charges.

SCHERING'S FORMALIN LAMP

FOR SICK-ROOM DISINFECTION AND DEODORIZATION.

SCHERING'S FORMALIN LAMP is unsurpassed for the Prevention of Contagious Diseases by chemical combination with their noxious principles. It energetically sterilizes, purifies and deodorizes the air, producing a pure, refreshing, and odorless atmosphere in the sick-room. It is invaluable in the Prevention and Treatment of **Catarrhs of all kinds, Influenza, Diphtheria, Measles, Scarlatina, Whooping-cough, and other Zymotic Affections,** and is endorsed by the leading hygienists of the world.

By the use of Schering's Formalin Pastils, which are entirely innocuous, the danger of employing the caustic liquid Formalin is avoided.

BETA=EUCAIN

A LOCAL ANÆSTHETIC FULLY EQUAL TO COCAIN, AND FREE FROM ITS DISADVANTAGES AND DANGERS.

IT is four times less toxic than the older drug, and no dangerous symptoms have ever resulted from its use. According to Dr. H. Braun of the University of Leipsic, Beta-Eucain is to be preferred to cocain **in infiltration anæsthesia** because it is less poisonous and less irritant, and because its solutions are permanent and can be boiled as often as is required. For application to **mucous membranes** when local ischæmia is desired it should be followed by or combined with suprarenal extract.

GLUTOL=SCHLEICH

THE BEST DRY DRESSING FOR WOUNDS AND BURNS.

GLUTOL OR FORMALIN GELATIN is an odorless, unirritating and non-poisonous powder causing a slow continuous liberation of Formalin when brought in contact with living body cells. It forms a firm scab on clean wounds in a few hours, rendering further disinfectant measures unnecessary; in infected wounds it rapidly checks pus formation. It can be freely used in the peritoneal or other serous cavities. Glutol has been adopted in many German Fire Departments as the very best dry dressing. Its application is painless, and it is used in very small quantities.

UROTROPIN

THE SAFEST AND MOST EFFICIENT URINARY ANTISEPTIC.

UROTROPIN has achieved a unique position as a urinary antiseptic and a uric acid and calculus solvent. It sterilizes the urine, causes the disappearance of micro-organisms, blood, mucus, pus, uric acid and urates, and exercises a healing effect upon the inflamed mucosa of the entire genito-urinary tract.

Urotropin has been found extremely valuable in **Cystitis** of all kinds, Bacteriuria, Phosphaturia, Pyelitis, Pyelonephritis, and Irritable Bladder from any cause. It is a powerful antidote to the Urinary Poisoning that so frequently occurs in Suppurative affections of the Genito-urinary Passages, and should be employed before and after Instrumentation and Operation of this region to forestall infection. It should be administered in every case of **Typhoid Fever** to remove the specific bacteriuria that so frequently occurs and to prevent spread of the infection.

Schering's Glycero=Phosphates,

NERVE TONICS AND STIMULANTS,

ENJOY an extended reputation in the treatment of neuralgia, phosphaturia, phosphatic albuminuria, sciatica, diabetes, scrofula, and rickets, in convalescence, and generally in the treatment of anæmic and neurasthenic conditions. They are **guaranteed to be true glycerophosphates,** and not mere phosphates.

ARGENTAMINE

A NON-IRRITATING SUBSTITUTE FOR SILVER NITRATE.

OF greater antibacterial power than any other of the newer silver preparations. Its very vigorous penetrative properties render it the most eligible of all where deep-seated disease foci are to be attacked.

SCHERING & GLATZ, 58 Maiden Lane, New York,

Literature furnished on application. **Sole Agents for the United States.**

CONTENTS (Continued from Page 7).

description of the parasites which can probably be found in only one American book; also their life cycle and the diagnosis of malarial fevers by means of blood examination. Then follows a classification of the malarial fevers based upon the very latest views. The theory that the parasites are conveyed by a certain species of mosquito, and that infeciton is by means of mosquito bites, is fully presented.................... 95

Examination of Urine for Albumin and Sugar. By John Winters Brannan, M.D., Medical Director Washington Life Insurance Company, New York. This is intended to be a short guide to the diagnostician for practical purposes, and is found to cover all essential points most satisfactorily. 107

A Clinical Report on Gude's Pepto-Mangan. By Samuel Wolfe, A.M., M.D., Physician to Philadelphia Hospital, Neurologist to Samaritan Hospital. This the reader will find to be a wonderful addition to the literature of Therapeutics. 113

Editorial.

President McKinley's Death.......... 117

Home Treatment of Tuberculosis..... 117

Christian Science and Mortality Rate.. 119

Cigarette Habit...................... 119

Book Reviews...................... 121

Therapeutics.................. 21

Clinical Notes........................ 25

Advertisers' Index.................. 31

DISSOLVE ON THE TONGUE

Antikamnia & Heroin Tablets

(5 GR. ANTIKAMNIA, 1/12 GR. HEROIN HYDROCHLOR.)

A RESPIRATORY STIMULANT, SEDATIVE, EXPECTORANT AND ANALGESIC
IN THE TREATMENT OF
COUGHS, BRONCHITIS, LARYNGITIS, PNEUMONIA, DYSPNŒA, PHTHISIS, CORYZA, WHOOPING COUGH, ASTHMA, HAY FEVER, COLDS, ETC.
DOSE: ONE TABLET EVERY TWO, THREE OR FOUR HOURS AS INDICATED

– SAMPLE BOX FREE TO PHYSICIANS –
ADDRESS
THE ANTIKAMNIA CHEMICAL COMPANY – ST. LOUIS, U.S.A.

THE TWO GREAT REMEDIES OF THE AGE

Hayden's Viburnum Compound
and Hayden's Uric Solvent

"H. V. C." the standard **ANTISPASMODIC, NERVINE,** and **UTERINE TONIC.**

Used and recommended by the majority of the Medical Profession of the United States.

The **URIC SOLVENT OF DR. HAYDEN** has been most successfully employed in all diseases of the **KIDNEYS, RHEUMATISM, NEURALGIA, GOUT,** etc., as it removes the cause of the complaints by eliminating the **URIC ACID** from the system. Send for booklets.

New York Pharmaceutical Co.
SOLE PROPRIETORS
BEDFORD SPRINGS, MASS.

Hopeless and Obstinate Cases of **Impotency** are Yielding to Pil Orientalis (Thompson)

℞ Ambrosia Orientalis (India) gr. 2, Nitrate Strychnine gr. 1.450
Extract Saw Palmetto - gr. ¼, Strychnos Ignatia gr. 1.40
Zinc Phosphide - - gr. ⅓, with Capsicum & Aromatic powder

The Extract Ambrosia Orientalis, imported solely by ourselves; made of the green bark from the Tyunjahb plant of Siam and India, and the Gorrah or Yooimbee of the East Coast of Africa.

Dr. J. B. Mattison, the prominent Brooklyn (N. Y.), physician, writes 25th Sept., 1901: "Two months' taking of Pil Orientalis (Thompson) raised my patient to such a state of rampant masculinity that after three years' suspension he resumed business."

Dr. G. W. Seaton, Clayton, Ind.: "Relieved a case of Impotency of fourteen years' standing."

Dr. M. R. Latimer, Aquasca, Md.: "Used on an old gentleman over seventy years of age for functional impotency, with decided benefit."

Price, $1 per box (plain label for dispensing).

THE IMMUNE TABLET CO.
WASHINGTON, D. C.

St. Louis, Meyer Bros. Drug Co. New Orleans, J. L. Lyons & Co. Fort Worth, Tex., H. W. Williams & Co.

TABLE OF CONTENTS.

Original Papers.

Past, Present and Future of Cancer. By Stuart McGuire, M.D., Professor of Principles of Surgery, University of Virginia, Surgeon to the Virginia and St. Luke's Hospitals, Richmond, Va. The reader will find this one of the most interesting additions to the literature on the subject. Dr. McGuire has had a most extensive experience in this disease, and has given to the profession the result of this experience in this paper, which is prepared with his usual painstaking and brilliant literary style. We feel highly complimented and under obligations to the Doctor for the opportunity offered us to present to our readers this valuable treatise 123

Ordinary Clinical Examination of Urine. By Thos. C. Craig, M.D., Surgeon, U. S. Navy (Retired). In this paper the author shows the necessity of a knowledge of the action of reagents and the technique for the examination of urine, and demonstrates the simplicity of making these investigations. After showing the value of certain findings, he takes up in detail all the various operations 132

Why Cycling, Running, Rowing and Athletics if Indulged in to Excess are Harmful. By T. Sydney Short, M.D. The title the author has chosen for his paper is a comprehensive one, and the subject, unless treated in

Continued on page 9.

Dysmenorrhea.

The experience of the profession demonstrates that ALETRIS CORDIAL (Rio) given in teaspoonful doses, three times a day, not only relieves dysmenorrhea, but, taken continuously, usually effects a permanent cure.

Being strictly a uterine tonic, it has a direct affinity for the reproductive organs, and exercises a healthy tonicity over their functional activity.

RIO CHEMICAL CO., 56 Thomas St., New York (formerly of St. Louis).

Send and get one of our magnificent albums entitled "A Gallery of Pictures of Interest to Medical Men," containing twelve handsome colored pictures (no advertisements on face of them) on heavy plate paper, suitable for framing. Sent absolutely free, postage prepaid, one copy only; all extra copies twenty-five cents each. Samples of Celerina, Aletris Cordial, or S. H. Kennedy's Ext. Pinus Canadensis sent free to any physician who will pay express charges.

COLLARGOLUM

(Soluble Metallic Silver--Von Heyden)

AN EFFICIENT INTERNAL ANTISEPTIC.

COLLARGOLUM is a soluble, non-poisonous allotropic Silver acting as a most effective General Antiseptic, and causing neither local reaction nor general poisonous effects. It has been employed with brilliant effect in Puerperal and other Sepses, in Cerebrospinal Meningitis, and wherever a **general blood and tissue disinfectant** has been required. In sterile blood or lymph it remains metallic silver; but in the presence of pathogenic bacteria or their toxins it enters into combination, and acts as **a vigorous germicide or antitoxic agent.** It may be employed by the mouth in capsule form or solution, injected into the veins, or applied locally to wounds; but in many cases it is most conveniently introduced into the system by the inunction of

UNGUENTUM CREDÉ

containing 15% of Collargolum, the employment of which has proved of the greatest value in the treatment of Septic Infections of the most varied kinds.

Creosotal and Duotal

(Creosote-Carbonate --Von Heyden), **(Guaiacol Carbonate --Von Heyden)**

Specifics for Phthisis Pulmonum and Pneumonias of all kinds.

ALL the objections to the employment of creosote and guaiacol, the method of election for the treatment of tubercular and other affections of the lungs, are obviated by the administration of these neutral, non-toxic, non-caustic, and absolutely non-irritating preparations, which contain 92% and 91% of these drugs respectively. The testimony is unanimous that they cause no gastric disturbance even in massive doses, but on the contrary, agree so well with the patients that their weight usually increases. They have very favorable effects upon the night sweats and fever, and the cough and expectoration are materially lessened or disappear entirely. Their action is undoubtedly specific in phthisis, and every case not too far advanced can be greatly benefited by their use.

Both Creosotal and Duotal are most eligible and effective germicides, and most vigorous neutralizers of microbic poisons in the intestinal tract. The remarkable effects obtained in tuberculosis, typhoid fever, rheumatoid arthritis, whooping cough, bronchitis and catarrhal affections of all kinds are explainable by the great powers of elimination of toxalbumins which these remedies have been proven to possess.

ORPHOL

(Betanaphtol-Bismuth--Von Heyden)
FOR
PRACTICAL INTESTINAL ANTISEPSIS.

ORPHOL is a neutral, odorless, tasteless, and non-toxic intestinal disinfectant with marked astringent properties. It may advantageously be employed in the place of the ordinary antiseptics, carbolic acid, naphtol, resorcin, bichloride of mercury, etc., which are caustic and poisonous, and it is superior to the newer tannin preparations, which possess no bactericide action at all.

Orphol is indicated in all the fermentative gastro-intestinal processes, in ptomaine poisonings, gastro-enteric catarrhs, typhoid fever, etc. Four or five 15 grain doses of Orphol will usually cure the very worst cases of diarrhœa; and in cholera infantum 2 to 5 grains administered every three or four hours act admirably.

XEROFORM

(Tribromphenol-Bismuth--Von Heyden)

THE IDEAL SUBSTITUTE FOR IODOFORM.

XEROFORM is an antiseptic, deodorizing, and desiccating agent of powerful antibacterial properties, which is odorless, non-poisonous, and non-irritating. It has been satisfactorily employed in the place of iodoform in the most varied operative procedures and surgical affections, including amputations, enucleations, cancer and periostitis operations, and deep abscesses; and in the treatment of chancroid and all suppurative skin affections. It has also been used in ophthalmic and gynæcological practice, and for insufflation into the nose and ear. It has also been found to be a very efficient internal antiseptic in cholera and intestinal tuberculosis.

SCHERING & GLATZ, 58 Maiden Lane, New York,

Literature furnished on application. **Sole Agents for the United States.**

CONTENTS (Continued from Page 7).

a somewhat elementary manner, would prove too wide to be dealt with in so short an article. He has, therefore, thought it advisable to indicate the main points only, leaving the secondary ones arising from them to be inferred rather than stated. To this end it has appeared advantageous to divide what he has to say into four divisions, and to consider the subject under the following heads: I.—A brief outline of anatomy of the circulation. II.—Some points in the physiology of the circulation. III.—The effect of muscular exercise upon the body. IV.—The effect on the expectation of life...... 138

Editorial.

The Trained Nurse.................. 147
The Medical Aspect of Appendicitis... 148
The Evil of Substitution............. 150

Book Reviews...................... 151

Therapeutics.

Formalin in Skin Diseases. By Dr. Heinrich Loeb...................... 21
The Nasal Douche, Its Use and Abuse. By Dr. Edmond J. Malville......... 24
Gynecological and Obstetrical Antiseptics........................... 26
The Therapeutic Value of Essential Food Products in the Treatment of Diseased Conditions. By Dr. C. H. Powell........................... 27
Sanmetto in Hypertrophied Prostate and in Irritability of Bladder....... 29

DISSOLVE ON THE TONGUE
Antikamnia & Heroin
Tablets
(5 GR. ANTIKAMNIA, 1/12 GR. HEROIN HYDROCHLOR.)
A RESPIRATORY STIMULANT, SEDATIVE, EXPECTORANT AND ANALGESIC
IN THE TREATMENT OF
COUGHS, BRONCHITIS, LARYNGITIS, PNEUMONIA, DYSPNŒA, PHTHISIS, CORYZA, WHOOPING COUGH, ASTHMA, HAY FEVER, COLDS, ETC.
DOSE: ONE TABLET EVERY TWO, THREE OR FOUR HOURS AS INDICATED
—SAMPLE BOX FREE TO PHYSICIANS—
ADDRESS
THE ANTIKAMNIA CHEMICAL COMPANY—ST. LOUIS, U.S.A.

THE TWO GREAT REMEDIES OF THE AGE

Hayden's Viburnum Compound

and Hayden's Uric Solvent

"H. V. C." the standard **ANTISPASMODIC, NERVINE,** and **UTERINE TONIC.**

Used and recommended by the majority of the Medical Profession of the United States.

The **URIC SOLVENT OF DR. HAYDEN** has been most successfully employed in all diseases of the **KIDNEYS, RHEUMATISM, NEURALGIA, GOUT,** etc., as it removes the cause of the complaints by eliminating the **URIC ACID** from the system. Send for booklets.

New York Pharmaceutical Co.
SOLE PROPRIETORS
BEDFORD SPRINGS, MASS.

Hopeless and Obstinate Cases of Impotency are Yielding to Pil Orientalis (Thompson)

℞ Ambrosia Orientalis (India) gr. 2, Nitrate Strychnine gr. 1.450
Extract Saw Palmetto - gr. ¼, Strychnos Ignatia gr. 1.40
Zinc Phosphide - - gr. ⅓, with Capsicum & Aromatic powder

The Extract Ambrosia Orientalis, imported solely by ourselves; made of the green bark from the Tyunjahb plant of Siam and India, and the Gorrah or Yooimbee of the East Coast of Africa.

Dr. J. B. Mattison, the prominent Brooklyn (N. Y.), physician, writes 25th Sept., 1901: "Two months' taking of Pil Orientalis (Thompson) raised my patient to such a state of rampant masculinity that after three years' suspension he resumed business."

Dr. G. W. Seaton, Clayton, Ind.: "Relieved a case of Impotency of fourteen years' standing."

Dr. M. R. Latimer, Aquasca, Md.: "Used on an old gentleman over seventy years of age for functional impotency, with decided benefit."

Price, $1 per box (plain label for dispensing).

THE IMMUNE TABLET CO.
WASHINGTON, D. C.

St. Louis, Meyer Bros. Drug Co. New Orleans, J. L. Lyons & Co. Fort Worth, Tex., H. W. Williams & Co.

TABLE OF CONTENTS.

Original Articles.

The Relation of Outdoor Life to High Altitude Therapy. By Charles Denison, A.M., M.D., Denver, Col....... 154

Clinical Notes on the Treatment of Bacterial Diarrhea. By Dr. Fred. Pirnat, Chicago, Ill., Lecturer on Practice Illinois Medical College, Attending Surgeon St. Hedwig Hospital, Attending Physician St. Joseph Home............................ 157

Treatment of Pneumonia............. 165

Beta Eucaine as an Anesthetic. [By John Moir, L.R.C.P. Ed. and L.R. C.S. Ed.......................... 170

Angina Pectoris. By Marvin E. Nuckols, M.D., Richmond, Va., Lecturer on Opera·ive Surgery, University College of Medicine 174

Society Meetings.

Richmond Academy of Medicine and Surgery........................... 177

Baltimore Medical and Surgical Association 179

Editorial........................... 182

Book Reviews.

Typhoid and Typhus Fevers.......... 183

Progressive Medicine. Vol. IV., 1901.. 184

A Treatise on the Acute, Infectious Exanthemata......................... 184

A Text Book of Obstetrics........... 184

A Text Book of the Practice of Medicine 184

Continued on page 9.

Dysmenorrhea.

The experience of the profession demonstrates that ALETRIS CORDIAL (Rio) given in teaspoonful doses, three times a day, not only relieves dysmenorrhea, but, taken continuously, usually effects a permanent cure.

Being strictly a uterine tonic, it has a direct affinity for the reproductive organs, and exercises a healthy tonicity over their functional activity.

RIO CHEMICAL CO., 56 Thomas St., New York (formerly of St. Louis).

Send and get one of our magnificent albums entitled "A Gallery of Pictures of Interest to Medical Men," containing twelve handsome colored pictures (no advertisements on face of them) on heavy plate paper, suitable for framing. Sent absolutely free, postage prepaid, one copy only; all extra copies twenty-five cents each. Samples of Celerina, Aletris Cordial, or S. H. Kennedy's Ext. Pinus Canadensis sent free to any physician who will pay express charges.

Formalin Lamp

Schering's Formalin Disinfectant and Deodorizing Lamp.

A most energetic disinfector and destroyer of foul and decomposing odors.
An absolutely reliable agent for air purification and sterilization.
Far more efficacious and pleasant than sulphur, carbolic acid, cresolene, etc.
The most efficient destroyer of the disease-producing micro-organisms.
Invaluable in the treatment and prevention of tuberculosis, diphtheria, scarlet fever, measles, whooping-cough, catarrh, influenza, etc.
Does not injure furniture, fabrics, or material of any kind.

When the vapors of Formalin are employed in the treatment of zymotic diseases, or for ordinary air purification and sterilization, one pastil should be constantly evaporated in the upper cup of the lamp. When rapid vaporization is required the upper cup should be removed and the pastils placed directly in the lower receptacle.

Formalin Disinfector

Schering's Formalin Disinfector.

The ideal appliance for the reliable disinfection of large rooms and entire buildings; from 200 to 250 Formalin pastils of 1 gramme each (100% pure formaldehyde) can be vaporized in one disinfector at a time. Approved and recommended by the highest foreign and American authorities and adopted by many Boards of Health and School authorities.

Beta-Eucaine (Eucaine Hydrochlorate "B")

Eucaine "B" has been extensively used in all branches of surgery, dentistry, ophthalmology, etc. Favorable reports concerning it have come from a host of practitioners on both sides of the Atlantic.

In a report made at the Academy of Medicine, Paris, March 29, 1898, published in *The Bulletin Médical* of March 30, 1898, **Prof. Reclus** stated: "**Eucaine 'B'** possesses a number of undubitable advantages. In the first place, **its solution can be boiled without undergoing decomposition, thus permitting it to be sterilized by heat.** This cannot be done with cocaine. In the second place solutions of **Eucaine 'B' are stable and this is the case, to such an extent, that he has been able, in conjunction with Dr. Legrand, to perform a number of long and delicate operations with solutions that were more than four months old.** This is far from being possible with cocaine solutions, as they change at the end of four or five days. Finally, and this is really the most important point, **Eucaine 'B' is 3¾ times less toxic than cocaine.**"

Glutol-Schleich

or Formalin gelatin, is an odorless, non-irritant and non-poisonous antiseptic powder, forming a hard scab in a few hours in contact with a clean wound, and of pre-eminent value in its treatment, since it renders other disinfectant measures unnecessary. Formalin is set free from the compound by the action of the tissue cells; a continuous stream penetrates every corner and crevice of the wound, and effects molecular antisepsis. Acute purulent processes are cut short, and lesions can be relied upon to run an aseptic course.

Urotropin.

A most efficient diuretic, urinary antiseptic, uric acid solvent, and remedy for calculous disease. Rapidly renders alkaline and putrid urine containing mucous, pus, uric acid, and amorphous urates normal in appearance and reaction. It sterilizes the urine, increases its quantity, and dissolves calculi and deposits. Very valuable in all suppurative diseases of the genito-urinary tract, pyelitis, cystitis with ammoniacal decomposition of the urine, phosphaturia, and also in gouty and rheumatic affections where active elimination of uric acid and the urates is required. Dose, 3 to 7½ grains two to three times a day, best administered in half a pint of simple or carbonated water.

SCHERING & GLATZ, 58 Maiden Lane, New York,
Sole Agents for the United States.

Literature furnished on application.